PHOTOFACT* FOLDER SET

*TRADE MARK

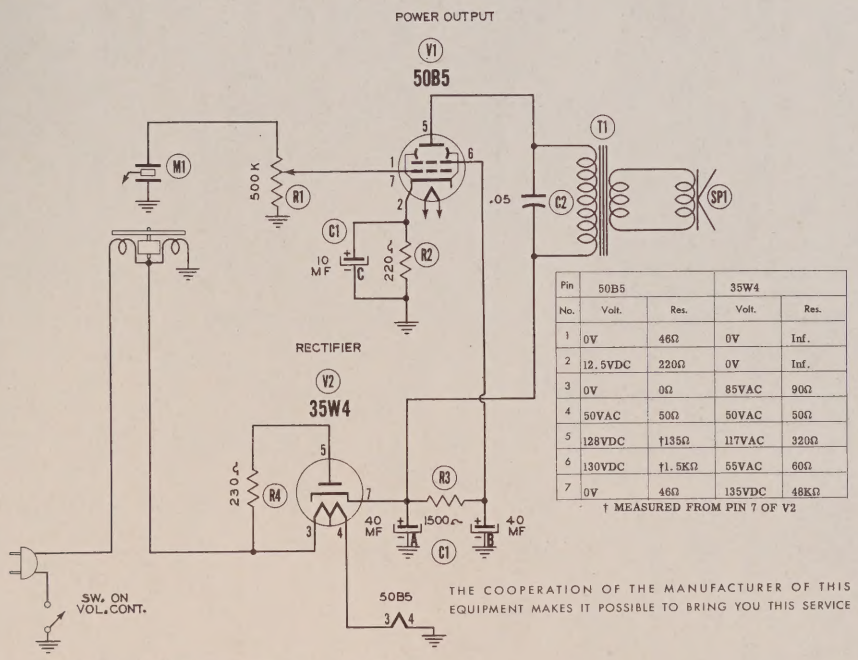
NO. 101

CONTENTS

TRADE NAME AND MODEL	SET AND FOLDER NO.
AIRCASTLE	
PAM-4	101-1
CORONADO	
05RA1-43-7755A, 05RA1-43-7755B	101-2
GENERAL ELECTRIC	
650	101-3
MECK	
SA-10	101-4
SA-20	101-4
XF-777 Tel. Rec.	101-5
XN-752 Tel. Rec.	101-5
XP-775 Tel. Rec.	101-5
XQ-776, XQA-776 Tel. Rec.	101-5
XR-778 Tel. Rec.	101-5
XS-786 Tel. Rec.	101-5
XT-785 Tel. Rec.	101-5
MISC. Record Changer	
Series 700FLP	101-6
MOTOROLA	
5M1, 5M1U (Ch. HS-249, HS-223)	101-7
5M2, 5M2U (Ch. HS-249, HS-223)	101-7
OPERADIO	
4A25-E	101-8
RCA VICTOR	
9X561 (Ch. RC-1079B), 9X562 (Ch. RC-1079C)	101-9
SILVERTONE	
1, 2 (Ch. 132.878)	101-10
41, 41A (Ch. 135.245)	101-11
9082 (Ch. 135.245)	101-11
STARRETT Tel. Rec.	
Gotham	101-12
TELE-TONE Tel. Rec.	
TV-255, TV-256 (Ch. TS)	101-13
TRAV-LER	
5022	101-14
TRUETONE	
D2017, D2018	101-15
WESTINGHOUSE	
H-309P3, H-309P3U (Ch. V-2156)	101-16
WILCOX-GAY Tel. Rec.	
OD-446M (OD Series)	101-17
ZENITH	
G725 (Ch. 7G01)	101-18

AIRCASTLE MODEL PAM-4

TRADE NAME	Aircastle, Model PAM-4
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Illinois
TYPE SET	AC Operated Phono Player with Two Tube Amplifier
TUBES	Types 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC
RATING	.23 Amp. at 117 Volts AC



Pin No.	50B5 Volt.	50B5 Res.	35W4 Volt.	35W4 Res.
1	0V	46Ω	0V	Inf.
2	12.5VDC	220Ω	0V	Inf.
3	0V	0Ω	85VAC	90Ω
4	50VAC	50Ω	50VAC	50Ω
5	128VDC	†135Ω	117VAC	320Ω
6	130VDC	†1.5KΩ	55VAC	60Ω
7	0V	46Ω	135VDC	48KΩ

† MEASURED FROM PIN 7 OF V2

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

101-1

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Power Output	50B5	50B5	7BZ	
V2	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150		PRSA86D4A		EDL4415C		TA-305	Filter-Red
B	40	150							Filter-Green
C	10	25							Output Cath. Byp. -Blue
C2	.05	200		P288-05		PTE4S5		TM-15	Output Plate Byp.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½		Q13-133	AM-60-Z	BSK-60-S	Volume control
B	Shaft			Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch			76-1	SW-A	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	220Ω	½		BW-½-220	Output Cathode
R3	1500Ω	1½		BTS-1500	Filter
R4	230Ω	10			Rect. Ballast-Wire Wound

TRANSFORMER (AUDIO OUTPUT)

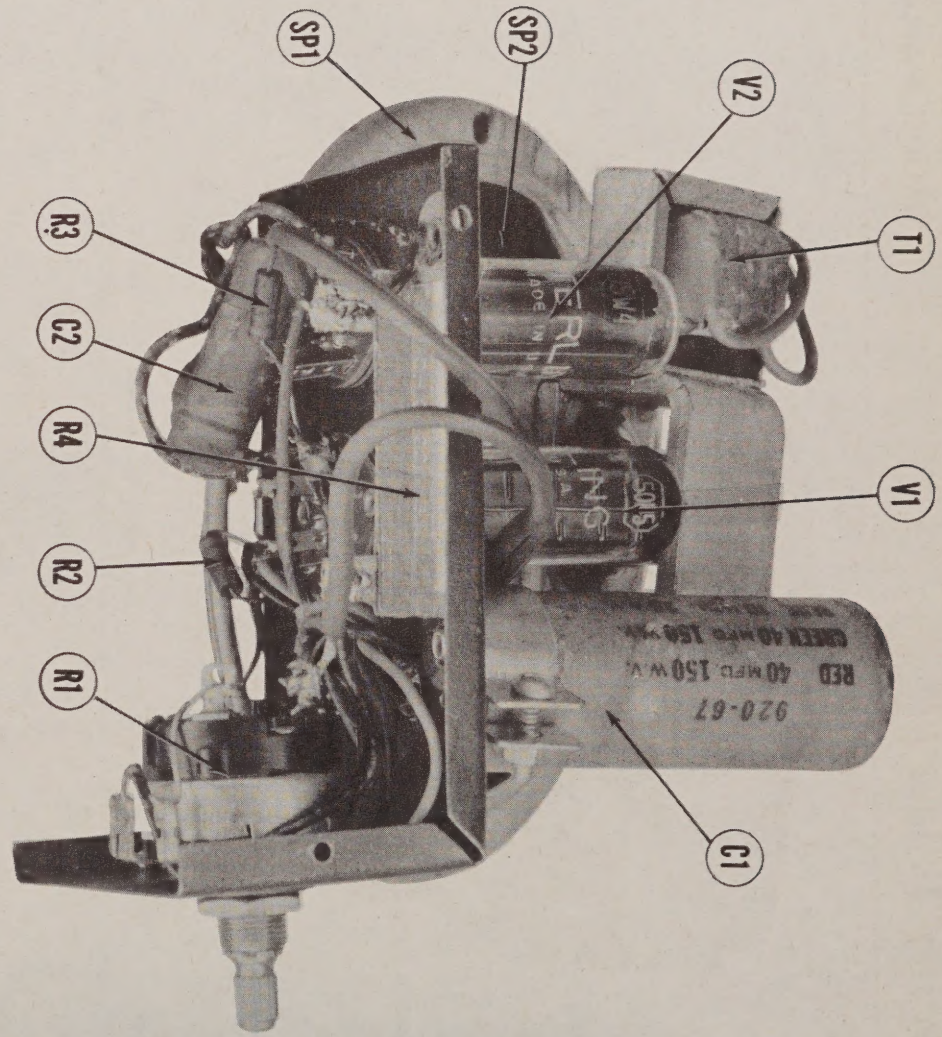
ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2.3KΩ	3.3Ω	135Ω	.5Ω		A-3332 ②	A-3025 ②	RO-2 ②	② Bend mounting tabs down and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-105 ①		
SP1	PM	3.3Ω		MOD. P5-X	4A07 ①	① Remount output transformer
	CONE DIA.	V. C. DIA.				
SP2	4 3/4"	9/16"				

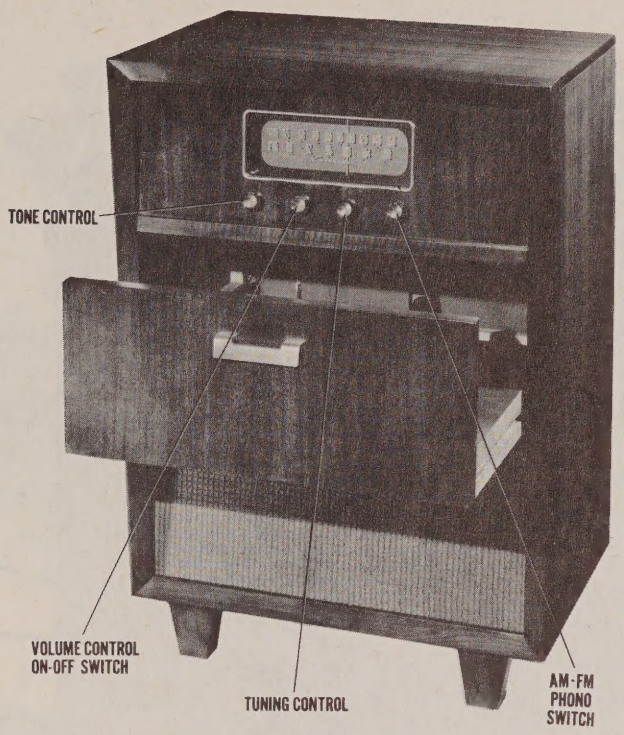
PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA: AIRCASTLE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	REMARKS
M1		M-22		93A		Phono Cartridge Pickup Arm



CORONADO
MODEL 05RA1-43-7755A, B

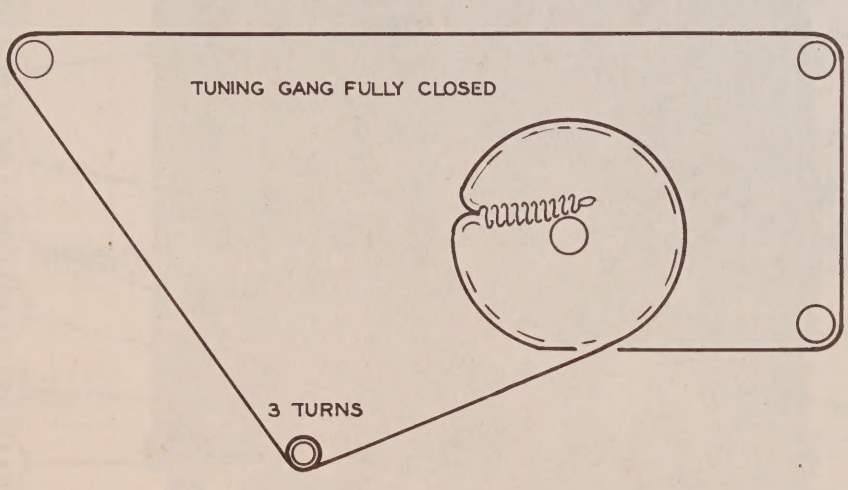
CORONADO
MODEL 05RA1-43-7755A, B



CORONADO MODEL 05RA1-43-7755A

TRADE NAME	Coronado, Model 05RA1-43-7755A, B
SUPPLIER	Gamble-Skogmo Inc., 15 N. 8th St., Minneapolis, Minnesota
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (EIGHT)	Types 12AT7 FM RF Amp.-Mixer, 6BE6 FM Osc.-AM Conv., 6BA6 1st IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 Ratio Det., 6AV6 DET-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .38 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC — FREQ. MOD. 88-108MC

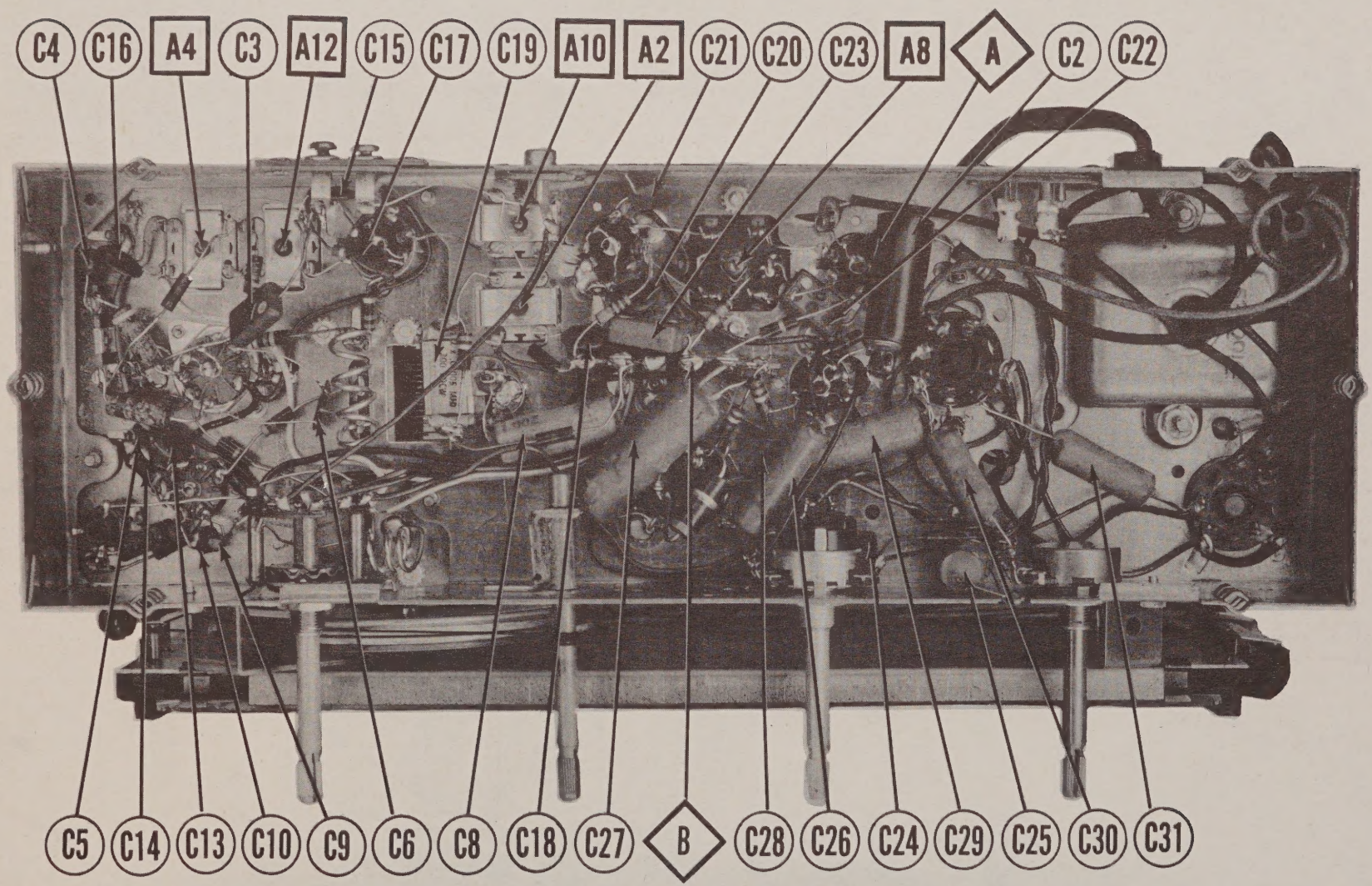
RECORD CHANGER -- V-M MODEL 406



DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


C4
C16
A4
C3
A12
C15
C17
C19
A10
A2
C21
C20
C23
A8
A
C2
C22
C5
C14
C13
C10
C9
C6
C8
C18
C27
B
C28
C26
C24
C29
C25
C30
C31

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
V1	FM RF Amp. -FM Mixer	12AT7	12AT7	9A	
V2	FM Osc. -AM Conv.	6BE6	6BE6	7CH	
V3	1st IF Amp.	6BA6	6BA6	7BK	
V4	2nd FM IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Det.	6AL5	6AL5	6BT	
V6	DET-AVC-AF	6AV6	6AV6	7BT	
V7	Power Output	6V6GT	6V6GT	7AC	
V8	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

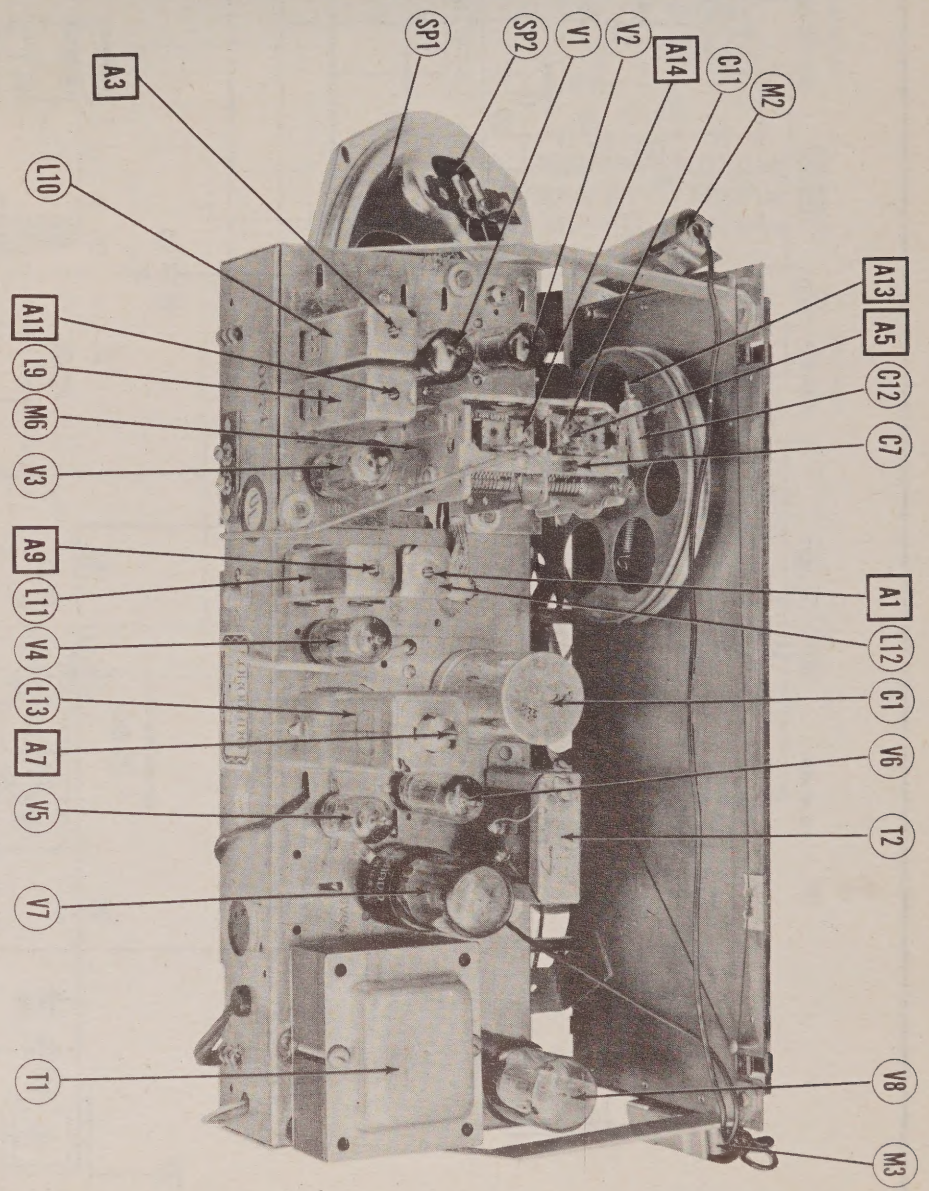
ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	200	45X360	AFH88G4D		UP4445C		EL-432	▪ Filter
B	40	150							■ Filter
C	20	25							▲ Output Cath. Byp.
C2	4	100	45X361	PRS150/4		BR415		UT-41	Stabilizing Cap.
C3	330	500	47X470	1468-00035	D6-331	5W5T3	GP2K-330	1FM-335	Ant. Coupling
C4	500		47X508	GP500M	D6-501	5W5T5	GP2K-500	1FM-35	FM RF Cath. Byp.
C5	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	FM RF Grid Filter
C6A	100		76X4	GP100M	D6-101	5W5T1	GP1K-100	1FM-31	RF Coupling
B	100			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	RF Coupling
C7	2.2		47X557		D2-2.2				Osc. Coupling
C8	.05	200	B66503	P288-05		PTE4S5		TM-15	AVC Filter
C9	30		47X558	GP30K	D6-330	5W5Q3	GP1K-30	MS-43	Osc. Grid Cap.
C10	2.2		47X557		D2-2.2				Osc. Feedback
C11	20		47X516	GP20K	D6-200	5R5Q2	GP1K-20	MS-42	Fixed Trimmer
C12	1-8		17A255				532-1-8		Variable Trimmer
C13	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	Osc. Anode Bypass
C14	130		47X559	SI130KN750	DN-130		N750L-130		Fixed Trimmer
C15	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	Conv. Plate Decoup.
C16	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	AVC Filter
C17	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	1st IF Screen Bypass
C18	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	1st IF Plate Decoup.
C19A	50		47X112	GP50M	D6-500	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
B	50			GP50M	D6-500	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
C20	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	2nd IF Decoupling
C21	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	2nd IF Fil. Bypass
C22	220	500	47X468	1468-00025	D6-221	5W5T5	GP2K-220	1FM-325	Diode Load Cap.
C23	2700	500	47X492	1467-0025	D6-272	1W5D25	GP2M-0027	1FM-23	De-emphasis
C24	68	500	47X471	1468-000075	D6-680	5W5Q7	GP1K-68	MS-47	Tone Compensation
C25	.04	200	B66403	P688-04		PTE6S4		TM-14	Tone Compensation
C26	.005	400	D66502	P688-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C27	.1	400	D66104	P488-1		PTE4P1		TM-1	AF Amp. Plate Dec.
C28	220	500	47X468	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	AF Amp. Plate Bypass
C29	.02	400	D66203	P488-02		PTE4S2		TM-12	Audio Coupling
C30	.004	600	B66402	P688-004		PTE6D4	GP2M-004	TM-24	Tone Compensation
C31	.001	800	H66102	P1088-001		PTE16D1		TR-21	Output Plate Bypass

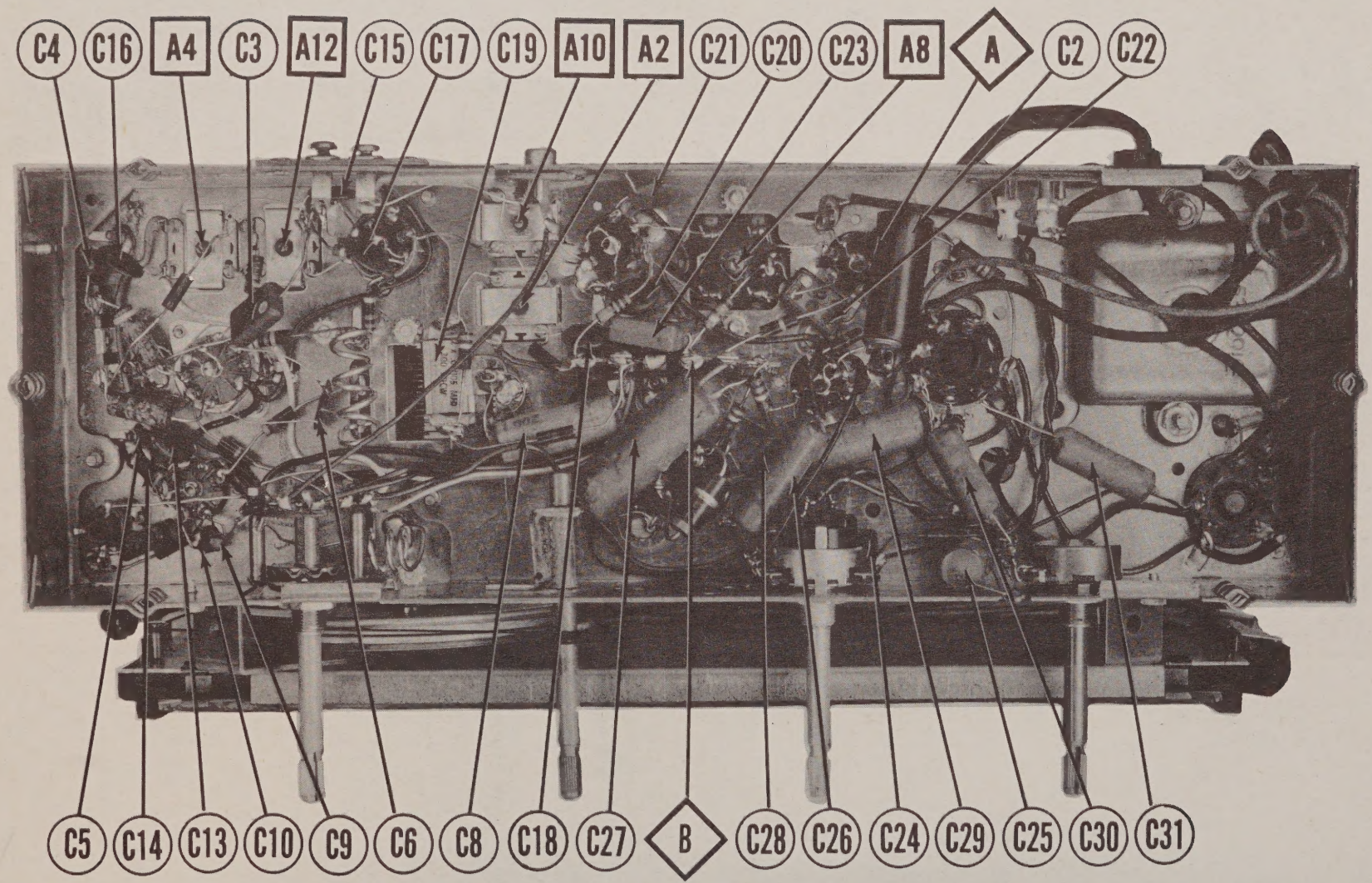
CONTROLS

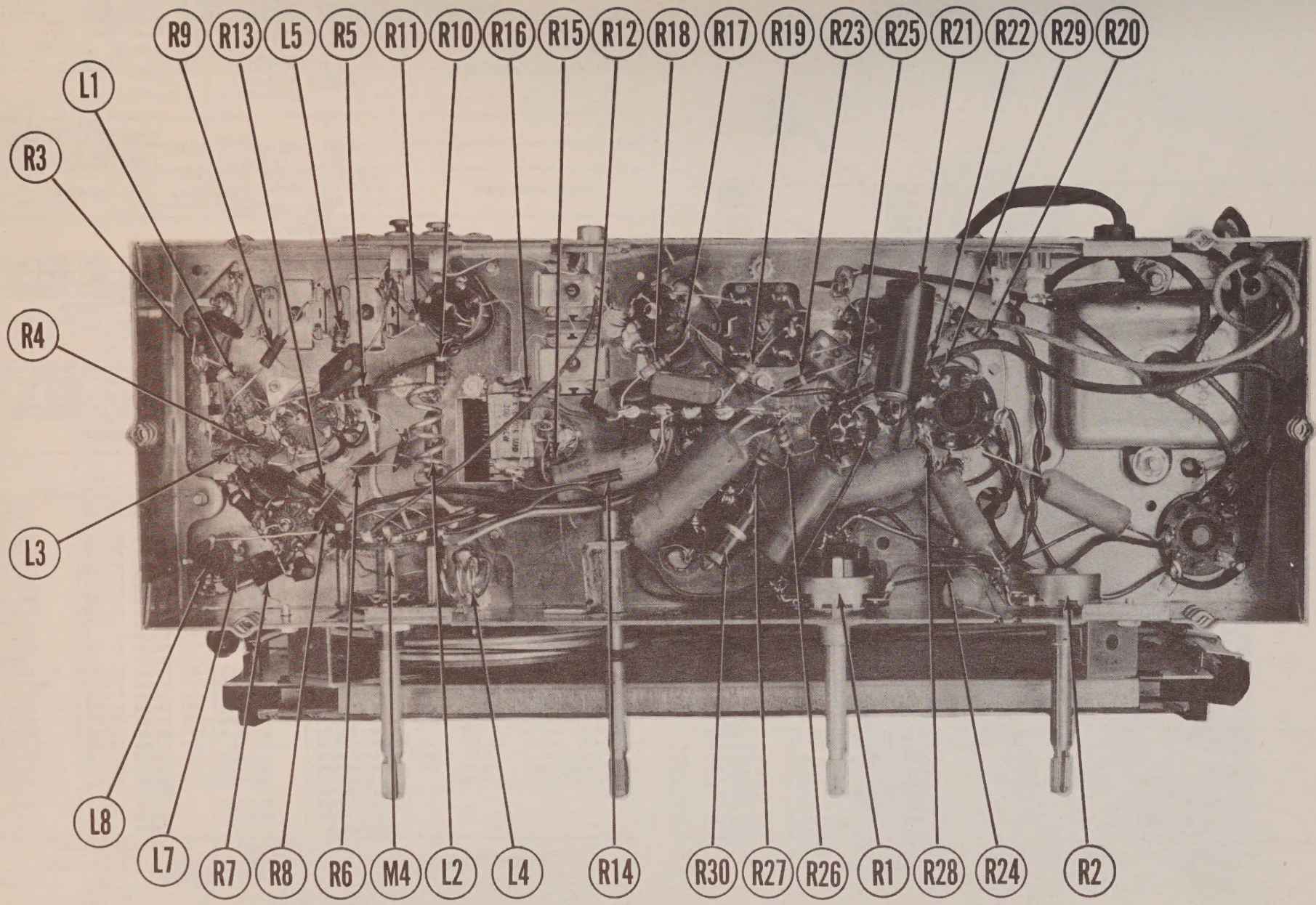
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	36X372	Q13-133X	AT-78	BTSK-66-S	Volume control tapped at 100KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R1A per instructions
R2A	3 Meg.	½	40X285	Q13-140	AM-67-Z	AN-85	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R2A per instructions

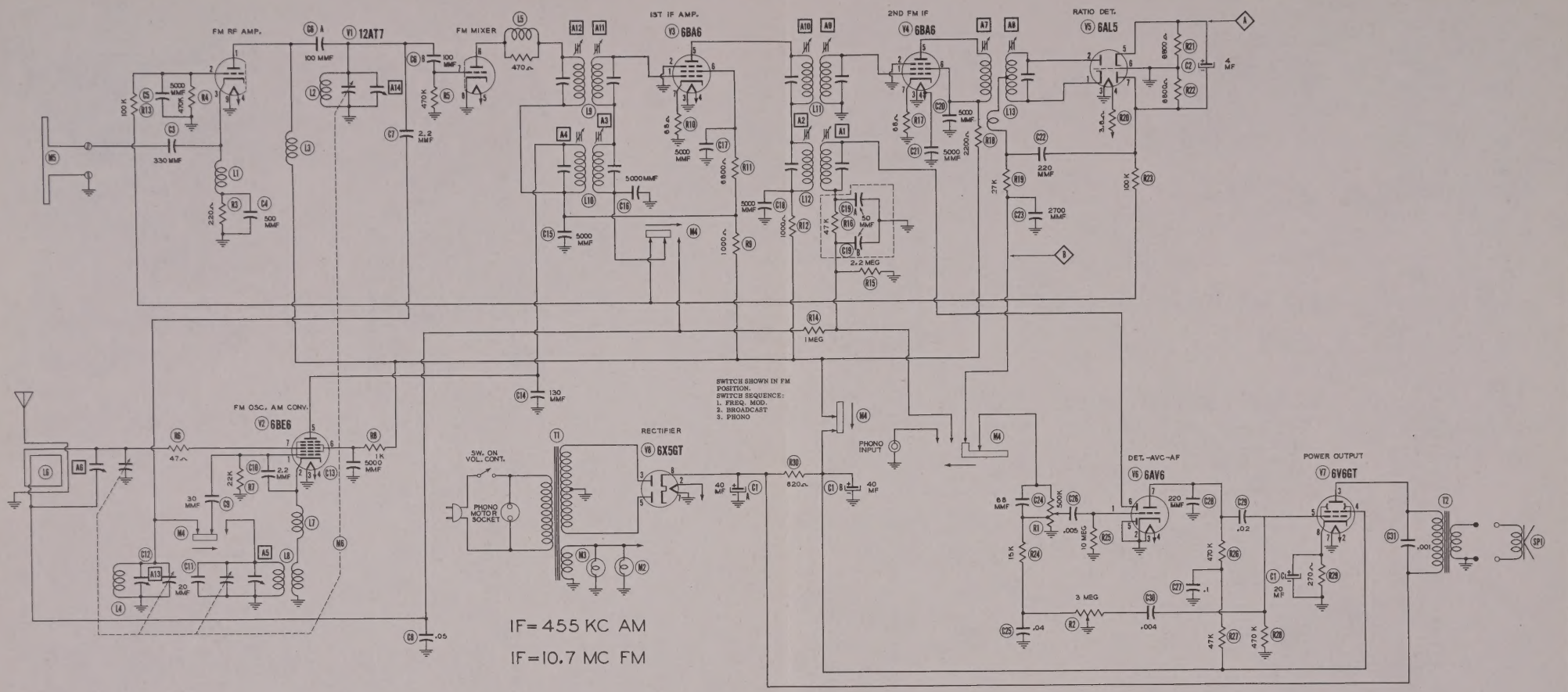
SET 101 FOLDER 2

CHASSIS—TOP VIEW




C4
C16
A4
C3
A12
C15
C17
C19
A10
A2
C21
C20
C23
A8
A
C2
C22
C5
C14
C13
C10
C9
C6
C8
C18
C27
B
C28
C26
C24
C29
C25
C30
C31


R9
R13
L5
R5
R11
R10
R16
R15
R12
R18
R17
R19
R23
R25
R21
R22
R29
R20
L1
R3
R4
L3
L8
L7
R7
R8
R6
M4
L2
L4
R14
R30
R27
R26
R1
R28
R24
R2



VOLTAGE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	12AT7	130VDC	-.1VDC	1VDC	0V.	0V.	125VDC	-1.5VDC	0V.	6.3VAC
†	V2	6BE6	1-5.4VDC	0V.	0V.	6.3VAC	125VDC	120VDC	-1.2VDC		
#	V2	6BE6	1-7VDC	0V.	0V.	6.3VAC	120VDC	120VDC	-.4VDC		
†	V3	6BA6	-.2VDC	0V.	0V.	6.3VAC	120VDC	100VDC	1VDC		
#	V3	6BA6	-.3VDC	0V.	0V.	6.3VAC	120VDC	95VDC	.8VDC		
†	V4	6BA6	0V.	0V.	0V.	6.3VAC	100VDC	100VDC	1VDC		
†	V5	6AL5	-2.2VDC	-.1VDC	0V.	5.4VAC	.3VDC	0V.	-.8VDC		
#	V6	6AV6	-.6VDC	0V.	0V.	6.3VAC	0V.	-2.4VDC	80VDC		
#	V7	6V6GT	0V.	6.3VAC	185VDC	125VDC	0V.	0V.	0V.		
#	V8	6X5GT	0V.	6.3VAC	175VAC	0V.	175VAC	0V.	0V.		

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	12AT7	†820Ω	150KΩ	220Ω	0Ω	0Ω	†2.2KΩ	470KΩ	0Ω	.1Ω
†	V2	6BE6	22KΩ	2Ω	0Ω	.1Ω	†1.8KΩ	†1.8KΩ	3.2 Meg.		
#	V2	6BE6	22KΩ	2Ω	0Ω	.1Ω	†1.8KΩ	†1.8KΩ	1.4 Meg.		
†	V3	6BA6	100KΩ	0Ω	0Ω	.1Ω	†1.8KΩ	†8.6KΩ	68Ω		
#	V3	6BA6	1.4 Meg.	0Ω	0Ω	.1Ω	†1.8KΩ	†8.6KΩ	68Ω		
†	V4	6BA6	1Ω	0Ω	0Ω	.1Ω	†3KΩ	†3KΩ	68Ω		
†	V5	6AL5	500KΩ	500KΩ	0Ω	2.1Ω	6.8KΩ	0Ω	6.8KΩ		
#	V6	6AV6	10 Meg.	0Ω	0Ω	.1Ω	0Ω	440KΩ	†520KΩ		
#	V7	6V6GT	Inf.	.1Ω	†430Ω	†820Ω	470KΩ	.8Ω	0Ω	270Ω	
#	V8	6X5GT	Inf.	.1Ω	170Ω	Inf.	170Ω	Inf.	0Ω	150KΩ	

‡ TAKEN IN "FM" POSITION.
# TAKEN IN "AM" POSITION.
† MEASURED FROM PIN 8 OF V8.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1950

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set the dial pointer turn the tuning gang fully closed and set the pointer 1/4 inch to the left of the last reference mark at the low frequency end of the dial.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (Grid) of 6BE6 (V2). Low side to chassis.	455KC (400 ∿ Mod.)	AM (center)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	.1MFD	"	1620KC	"	"	"	A5	"
3.		Loop	1400KC	"	Tune for max. output	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	2500MMF	High side to pin 1 (Grid) of 6BA6 (V4). Low side to chassis.	10.7MC (Unmod.)	FM (CW)	Tuning gang fully open	DC Probe to Point (A) Common to chassis.	A7	Adjust for maximum deflection.
5.	"	"	"	"	"	DC Probe to Point (B) Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	"	High side to pin 1 (Grid) of 6BA6 (V3). Low side to chassis.	"	"	"	DC Probe to Point (A) Common to chassis.	A9, A10	Adjust for maximum deflection.
7.	"	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis.	"	"	"	"	A11, A12	"

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	2500MMF	High side to pin 1 (Grid) of 6BA6 (V3). Low side to chassis.	10.7MC (450KC Sweep)	FM (CW)	Tuning gang fully open	Vert. Amp. to Point (A). Low side to chassis.	A7, A9, A10	Disconnect stabilizer cap. (C2). Adjust for maximum amplitude and symmetry as per figure 1.
5.	"	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis.	"	"	"	"	A11, A12	"
6.	"	"	"	"	"	Vert. Amp. to Point (B). Low side to chassis.	A8	Reconnect capacitor C2. Adjust A8 so 10.7MC occurs at center of crossover lines as per fig. 2. Slightly retouch A7 for maximum amplitude and straightness of crossover lines. Continue with step 8.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	300Ω carbon res.	High side thru 300Ω to ungrounded "FM" antenna terminal. Low side to chassis.	108.5MC (Unmod.)	FM	Tuning gang fully open	DC Probe to Point (A) Common to chassis.	A13	Adjust for maximum deflection.
9.	"	"	104.5MC	"	Tune for max. deflection	"	A14	"

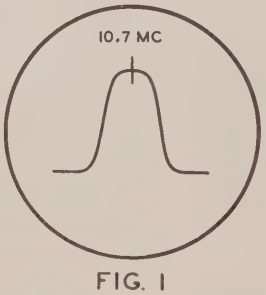


FIG. 1

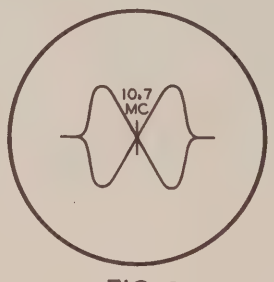


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	FM RF Amp. -FM Mixer	12AT7	12AT7	9A	
V2	FM Osc. -AM Conv.	6BE6	6BE6	7CH	
V3	1st IF Amp.	6BA6	6BA6	7BK	
V4	2nd FM IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Det.	6AL5	6AL5	6BT	
V6	DET-AVC-AF	6AV6	6AV6	7BT	
V7	Power Output	6V6GT	6V6GT	7AC	
V8	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

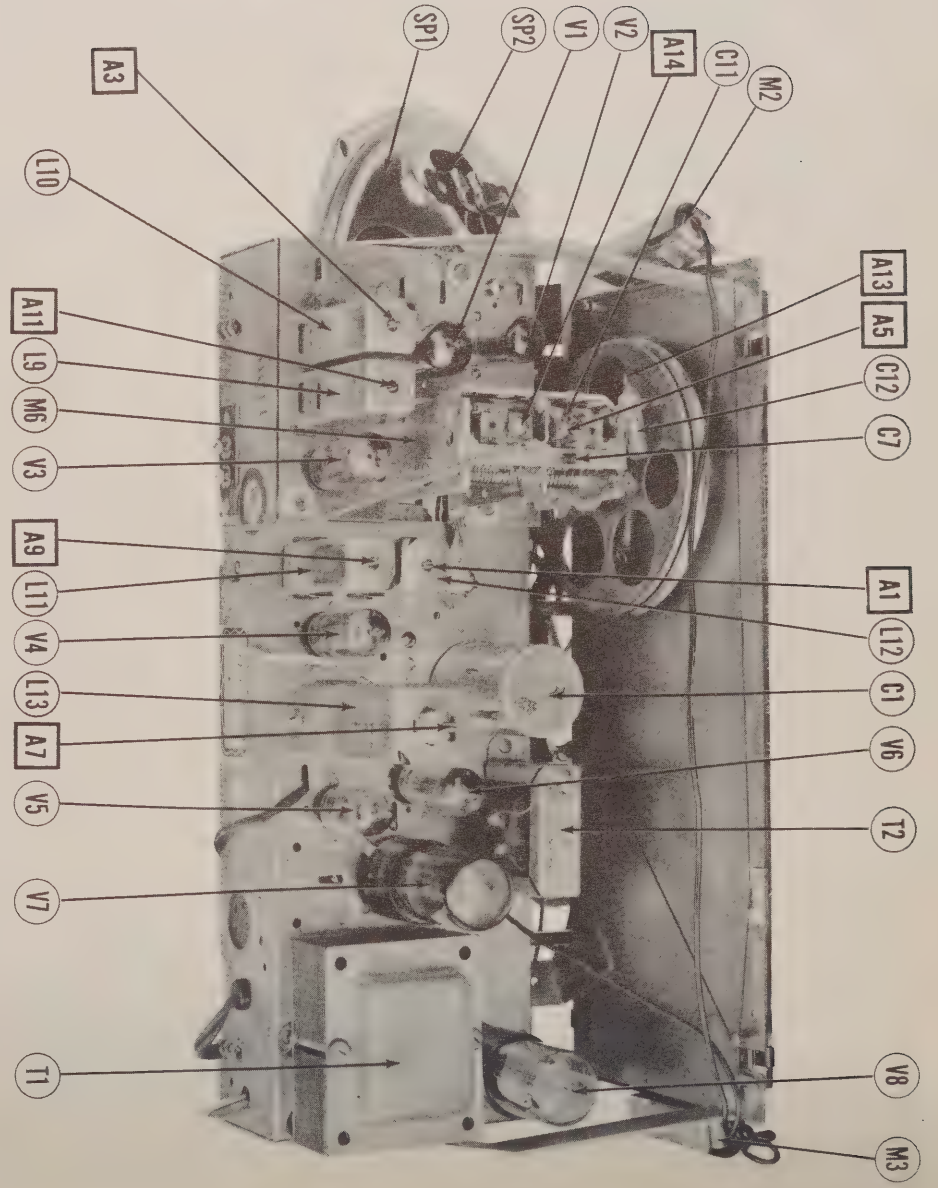
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	200	45X360	AFH88G4D		UP4445C		EL-432	▲ Filter
B	40	150							■ Filter
C	20	25							▲ Output Cath. Byp.
C2	4	100	45X361	PRS150/4		BR415		UT-41	Stabilizing Cap.
C3	330	500	47X470	1468-00035	D6-331	5W5T3	GP2K-330	1FM-335	Ant. Coupling
C4	500		47X508	GP500M	D6-501	5W5T5	GP2K-500	1FM-35	FM RF Cath. Byp.
C5	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	FM RF Grid Filter
C6A	100		76X4	GP100M	D6-101	5W5T1	GP1K-100	1FM-31	RF Coupling
B	100			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	RF Coupling
C7	2.2		47X557		D2-2.2				Osc. Coupling
C8	.05	200	B66503	P288-05		PTE4S5		TM-15	AVC Filter
C9	30		47X558	GP30K	D6-330	5W5Q3	GP1K-30	MS-43	Osc. Grid Cap.
C10	2.2		47X557		D2-2.2				Osc. Feedback
C11	20		47X516	GP20K	D6-200	5R5Q2	GP1K-20	MS-42	Fixed Trimmer
C12	1-8		17A255				532-1-8		Variable Trimmer
C13	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	Osc. Anode Bypass
C14	130		47X559	SI130KN750	DN-130		N750L-130		Fixed Trimmer
C15	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	Conv. Plate Decoup.
C16	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	AVC Filter
C17	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	1st IF Screen Bypass
C18	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	1st IF Plate Decoup.
C19A	50		47X112	GP50M	D6-500	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
B	50			GP50M	D6-500	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
C20	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	2nd IF Decoupling
C21	5000		47X507	BPD-5	D6-502	1D5D5	811-005	29C1	2nd IF Fil. Bypass
C22	220	500	47X468	1468-00025	D6-221	5W5T5	GP2K-220	1FM-325	Diode Load Cap.
C23	2700	500	47X492	1467-0025	D6-272	1W5D25	GP2M-0027	1FM-23	De-emphasis
C24	68	500	47X471	1468-000075	D6-680	5W5Q7	GP1K-68	MS-47	Tone Compensation
C25	.04	200	B66403	P688-04		PTE6S4		TM-14	Tone Compensation
C26	.005	400	D66502	P688-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C27	.1	400	D66104	P488-1		PTE4P1		TM-1	AF Amp. Plate Dec.
C28	220	500	47X468	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	AF Amp. Plate Bypass
C29	.02	400	D66203	P488-02		PTE4S2		TM-12	Audio Coupling
C30	.004	600	B66402	P688-004		PTE6D4	GP2M-004	TM-24	Tone Compensation
C31	.001	800	H66102	P1088-001		PTE16D1		TR-21	Output Plate Bypass

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	36X372	Q13-133X	AT-78	BTSK-66-S	Volume control tapped at 100KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R1A per instructions
R2A	3 Meg.	½	40X285	Q13-140	AM-67-Z	AN-85	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R2A per instructions

SET 101 FOLDER 2

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CORONADO PART No.	IRC PART No.	
R3	220Ω	½	B84221		FM RF Cathode
R4	470KΩ	½	B85474	BTS-470K	FM RF Grid
R5	470KΩ	½	B85474	BTS-470K	FM Mixer Grid
R6	47Ω	½	B85470		Parasitic Supp.
R7	22KΩ	½	B85223	BTS-22K	Osc. Grid
R8	1000Ω	½	B85102	BTS-1000	Osc. Anode
R9	1000Ω	½	B85102	BTS-1000	Conv. Plate Decoupling
R10	68Ω	½	B84680		1st IF Cathode
R11	6800Ω	½	B84682	BTS-6800	1st IF Screen
R12	1000Ω	½	B85102	BTS-1000	1st IF Plate Decoupling
R13	100KΩ	½	B85104	BTS-100K	AVC Network
R14	1 Meg.	½	B85105	BTS-1 Meg.	AVC Network
R15	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Diode Load
R16	47KΩ	½	B85473	BTS-47K	Diode Filter
R17	68Ω	½	B84680		FM 2nd IF Cathode
R18	2200Ω	½	B85222	BTS-2200	FM 2nd IF Decoupling
R19	27KΩ	½	B85273	BTS-27K	De-emphasis
R20	3.6Ω	½	43X233		Ratio Det. Filament-Wire Wound
R21	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R22	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R23	100KΩ	½	B85104	BTS-100K	AVC Network
R24	15KΩ	½	B85153	BTS-15K	Tone Compensation
R25	10 Meg.	½	B85106	BTS-10 Meg.	AF Amp. Grid
R26	470KΩ	½	B85474	BTS-470K	AF Amp. Plate
R27	47KΩ	½	B85473	BTS-47K	AF Amp. Plate Decoupling
R28	470KΩ	½	B85474	BTS-470K	Output Grid
R29	270Ω	½	B84271	BW-½-270	Output Cathode
R30	820Ω	2	D84821	BW-2-820	Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⓐ .38A	350VCT .052A	6.3VAC ⓐ 2.9A		53X291	P-6348 ①	P-3047 ①	PH-70B ①

① Drill new mounting holes and add series resistor to reduce plate voltage.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6200Ω	3.5Ω	430Ω	.8Ω	51X134	A-3823	A-3019	RO-9 ②	② Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CORONADO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-115		
SP1	PM	3.5Ω	12A477	MOD. P8-V	8A31	
	CONE DIA.	V. C. DIA.				
SP2	7 1/4"	3/4"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	
L1	FM Ant.	0Ω		35A9		
L2	FM RF	0Ω		9A2066		
L3	RF Choke	3Ω		35A8		
L4	FM Osc.	0Ω		9A2067		
L5	Para. Supp.	0Ω		9A2103		Wound on 470Ω resistor

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	
L6	Loop Ant.	0Ω	.9Ω	9A2099		
L7	RF Choke	1.8Ω		35A5		
L8	AM Osc.	.5Ω	5.2Ω	9A2065	14-1073	
L9	1st FM IF	1Ω	1Ω	9A2060	16-3487	
L10	1st AM IF	13Ω	15Ω	9A2062	16-6758	
L11	2nd FM IF	1Ω	1Ω	9A2061	16-3487	
L12	2nd AM IF	13Ω	14.8Ω	9A2063	16-6758	
L13	Ratio Det. Trans.	1.2Ω	.1Ω	9A2064	17-3487	

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	CORONADO PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		AC-AG-J	A-AG	W26B	A66U	

ASTATIC AND SHURE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

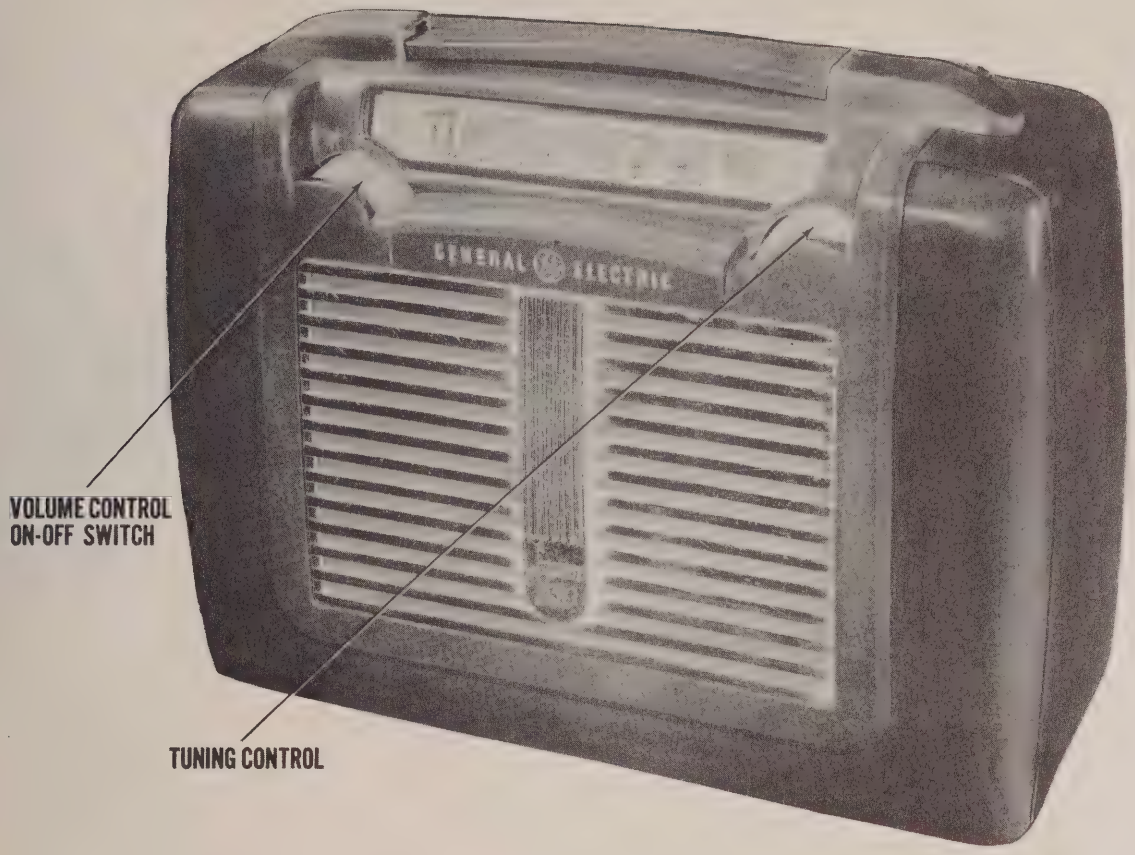
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					CORONADO PART No.		
M2	Bayonet	6-8	.15	Brown	7A103		Type #47
M3	Bayonet	6-8	.15	Brown	7A103		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Switch	2A393	Band-Phono
M5	FM Ant.	9A2003	Dipole
M6	2 Gang Var. Cap.	14A209	(17-507MMF, 14-187MMF)
A6	Trimmer	17A256	BC Ant. Adj.
A13	Trimmer	17A255	FM Osc. Adj.
	Dial Pointer	15X251	
	Dial Glass	58X732	
	Knob	10A699	Tuning
	Knob	10A700	Off-Volume
	Knob	10A701	Tone
	Knob	10A702	Band-Phono

GENERAL ELECTRIC
MODEL 650 (BATTERY-LINE OPERATED)



GENERAL ELECTRIC
MODEL 650 (BATTERY-LINE OPERATED)

GENERAL ELECTRIC MODEL 650

TRADE NAME	General Electric, Model 650
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, New York
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 DET-AVC-AF, 3V4 Power Output
POWER SUPPLY	105-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply in Pack Form
RATING	.17 Amp. at 117 Volts AC or 50MA at 9 Volts DC and 15MA at 90 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set center of pointer 7/16" from left end of cut out in chassis on which pointer carriage rides.

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 6 (Grid) of 1R5 (V2). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.	.05MFD	High side to pin 6 (Grid) of 1T4 (V1). Low side to B-.	1620KC	"	"	A5	Adjust for maximum output.
3.	REPLACE CHASSIS IN CABINET WITH CABINET BACK CLOSED. REMOVE PLUG BUTTONS FOR ADJUSTMENT.						
4.		Loop	1500KC	Tune for max. output	Across voice coil	A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
5.		Loop	600KC	600KC	"	A8	"

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

GENERAL ELECTRIC
MODEL 650

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		G. E. PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	1T4	1T4	6AR	
V2	Converter	1R5	1R5	7AT	
V3	IF Amp.	1T4	1T4	6AR	
V4	DET-AVC-AF	1S5	1S5	6AU	
V5	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150	RCE-095	AF88D40A		UP4415C20		EL-224 *	■ Filter
B	40	150						TVA-9	▲ Filter
C	200	20							Filament Bypass
C2	100	6	UCC-067	PRS6/100		BRH601		UHC-106	Filament Bypass
C3	5			CN5DNPO	D2-4.7	5W5V5	GP1K-5	MS-55	RF Coupling
C4	47		RCW-1063	GP47K	D6-470	5W5Q5	GP1K-47	1FM-45	Osc. Grid Cap.
C5	.05	200	UCC-045	P288-05		PTE4S5		TM-15	Filament Bypass
C6	.05	200	UCC-045	P288-05		PTE4S5		TM-15	AVC Filter
C7	.022	200	UCC-041	P488-022		PTE4S2		TM-12	Decoupling
C8A	220		RCW-3015	GP220M	D6-221	5W5T25	GP2K-220	1FM-325	Diode RF Filter
B	2000			GP2000M	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C	5000			BPD-5	D6-502	PTE6D5	811-005	29C1	AF Amp. Screen
D	220			GP220M	D6-221	5W5T25	GP2K-220	1FM-325	AF Amp. Plate
E	5000			BPD-5	D6-502	PTE6D5	811-005	29C1	Audio Coupling
C9	.003	400	UCC-037	P688-003	D6-302	PTE6D3	GP2M-003	TM-23	Output Plate
C10	.05	600	UCC-045	P688-05		PTE6S5		72P51	Line Isolation
C11	.03	600	UCC-042	P688-03		PTE6S3		TM-13	Line Filter

* Parallel sections to obtain desired capacity.

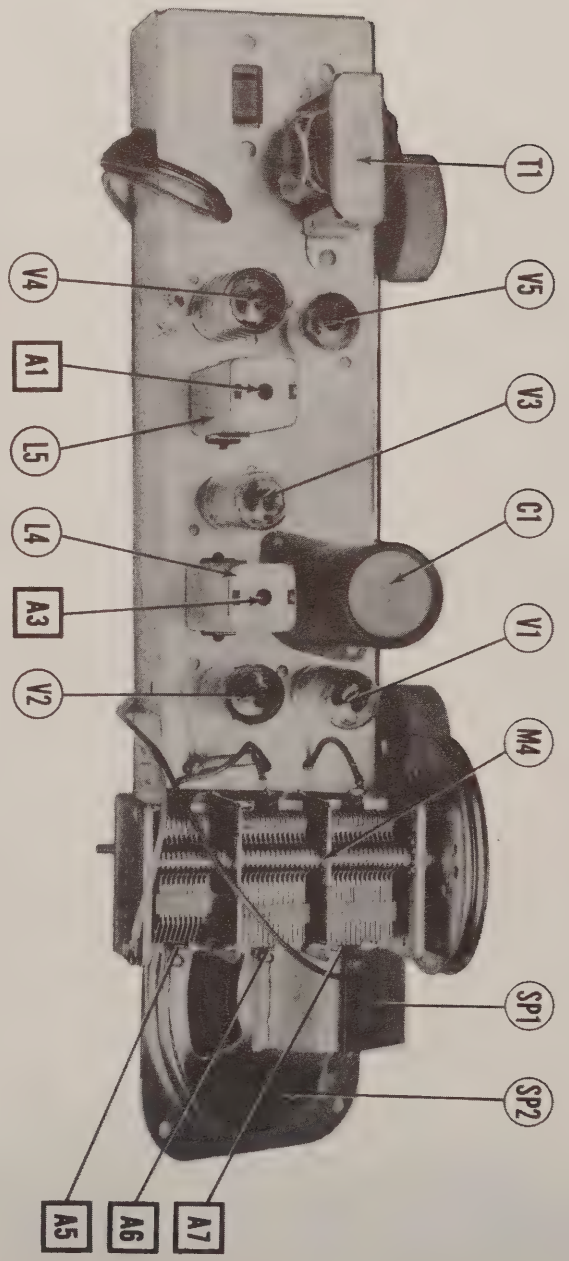
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	G. E. PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	RRC-083	Q13-133	AG-60-Z	BSK-60-S	Volume control and switch
B	Shaft		Not Req.	Not Req.	KES-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-2	SW-B2	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	G. E. PART No.	IRC PART No.	
R2	100KΩ	½	URD-097	BTS-100K	Osc. Grid
R3	5600Ω	½	URD-067	BTS-5600	Screen Dropping
R4	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	AVC Network
R5	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	AVC Network
R6	4.7 Meg.	½	URD-137	BTS-4.7 Meg.	AF Amp. Grid
R7	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	AF Amp. Screen
R8	470KΩ	½	URD-113	BTS-470K	AF Amp. Plate
R9	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Output Grid
R10	470KΩ	½		BTS-470K	Isolation
R11	470Ω	½	URD-043	BTS-470	Filament String
R12	680Ω	½	URD-045	BTS-680	Filament String
R13	1500Ω	½	URD-053	BTS-1500	Filament String
R14	2700Ω	1	URE-059	BTA-2700	Filter
R15	2300Ω	10	RRW-027	AB-2250	Filament Dropping-Wire Wound
R16	33Ω	1	URE-013		Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		G. E. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	9500Ω	3.6Ω	415Ω	.4Ω	RTO-050	A-3879 *	A-2932	RO-16	* Drill New Mtg. Holes

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			G. E. PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113		
SP1	PM	3.6Ω	DL-IRS-400D	MOD. P4-X	4A07	
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	G. E. PART No.	MEISSNER PART No.	
L1	Loop Ant.	3Ω		RLL-038		
L2	RF Coil	100Ω	6Ω	RLB-030	14-1072	
L3	Osc. Coil	2.8Ω	7.5Ω	RLC-068	14-1074	
L4	1st IF	21Ω	22Ω	RTL-052	16-6668	
L5	2nd IF	14Ω	17Ω	RTL-079	16-6669	

SELENIUM RECTIFIER

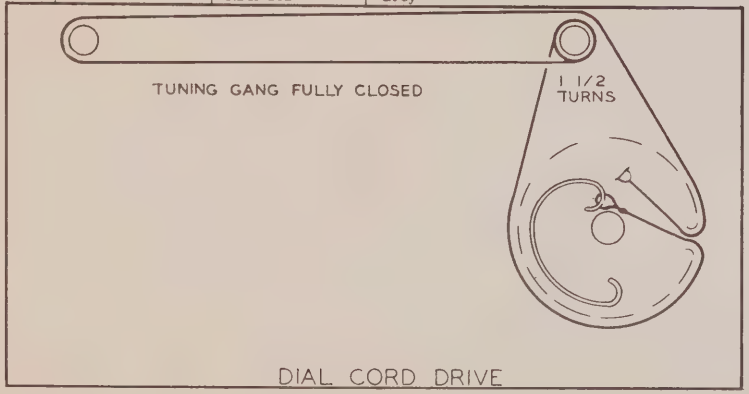
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	G. E. PART No.	SYLVANIA PART No.		
M1	.070ADC	RER-001	NB-5		

BATTERIES

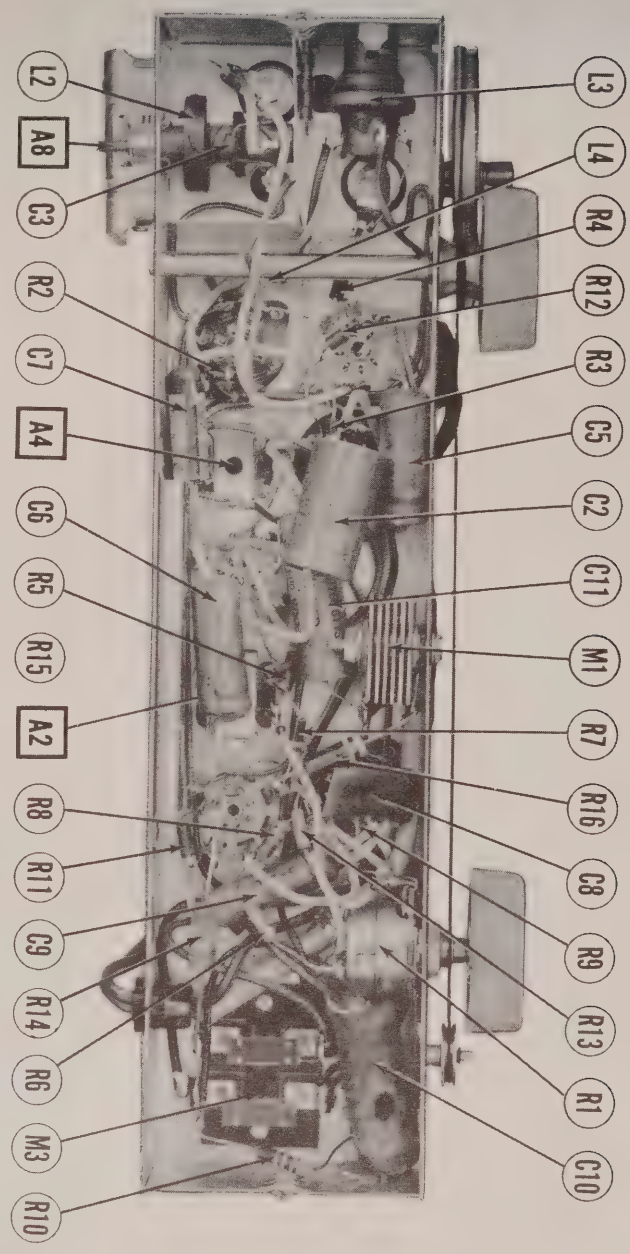
ITEM No.	VOLTAGE	G. E. PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	9V "A" 90V "B"				753			F6A60	

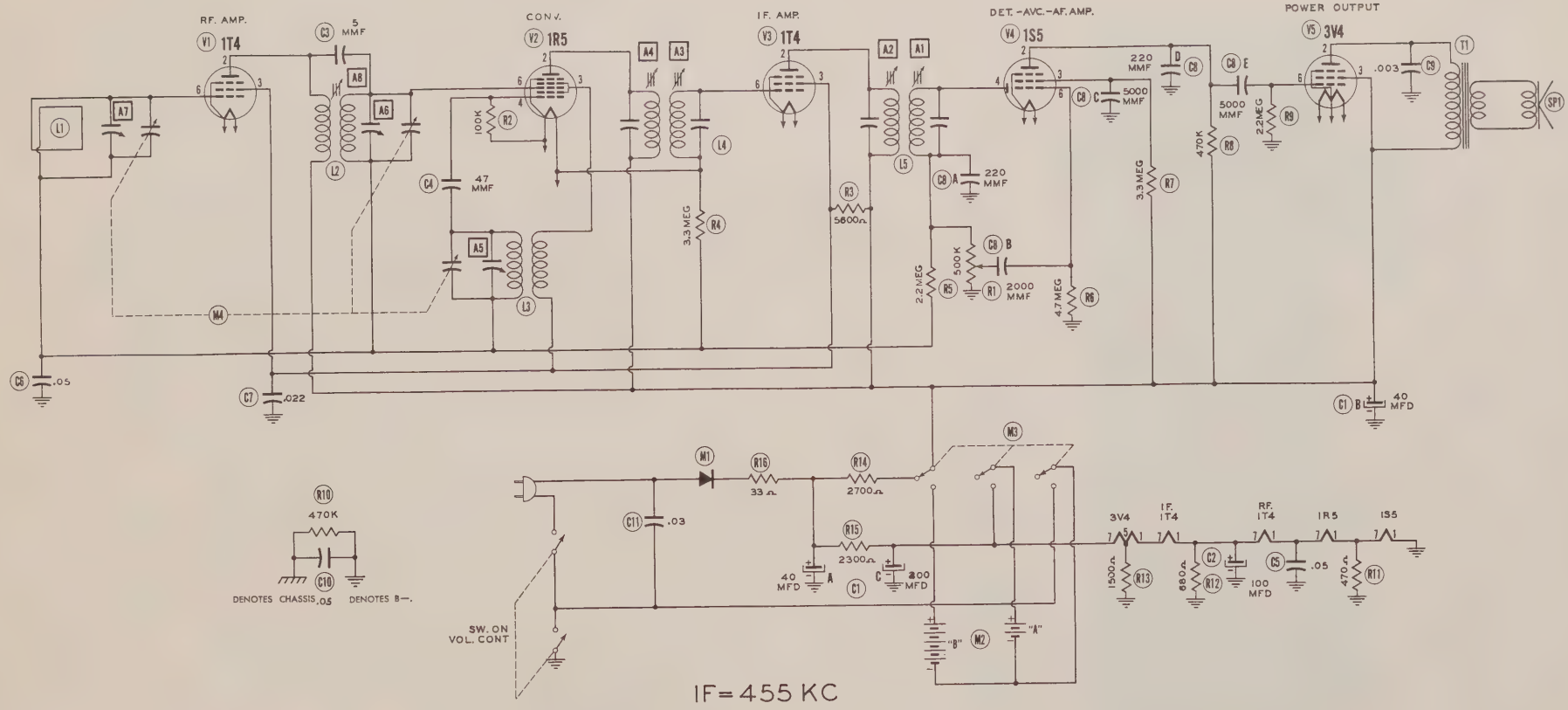
MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M3	Switch	RSW-058	AC/DC-Battery
M4	3 Gang Var. Cap.	RCT-039	(30-502MMF, 30-502MMF, 29-193MMF)
	Cabinet	RAU-323	Maroon
	Cabinet	RAU-324	Grey
	Dial Pointer	RDP-040	
	Dial Scale	RDS-092	
	Knob	RDK-136	Fawn
	Knob	RDK-202	Grey



CHASSIS—BOTTOM VIEW





IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1T4	2.8VDC	87VDC	60VDC	0V.	2.8VDC	.1VDC	4VDC
V 2	1R5	1.3VDC	90VDC	60VDC	5-20VDC	1.3VDC	.1VDC	2.8VDC
V 3	1T4	4VDC	90VDC	60VDC	.1VDC	4VDC	2.8VDC	5.6VDC
V 4	1S5	0V.	0V.	-.2VDC	15VDC	30VDC	0V.	1.3VDC
V 5	3V4	5.6VDC	85VDC	90VDC	0V.	6.8VDC	0V.	8.5VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1T4	*	†2.7KΩ	†8.3KΩ	0Ω	*	2 Meg.	*
V 2	1R5	*	†2.7KΩ	†8.3KΩ	100KΩ	*	2 Meg.	*
V 3	1T4	*	†2.7KΩ	†8.3KΩ	2 Meg.	*	*	*
V 4	1S5	*	Inf.	500KΩ	†3.3 Meg.	†470KΩ	4.7 Meg.	*
V 5	3V4	*	†3.1KΩ	†2.7KΩ	Inf.	*	2.2 Meg.	*

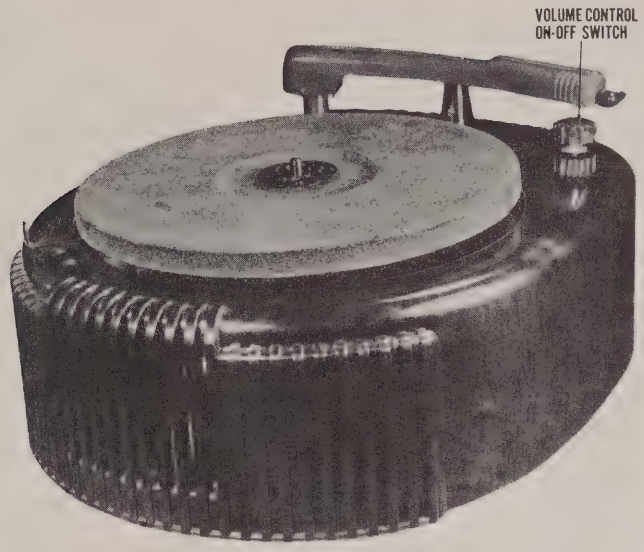
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

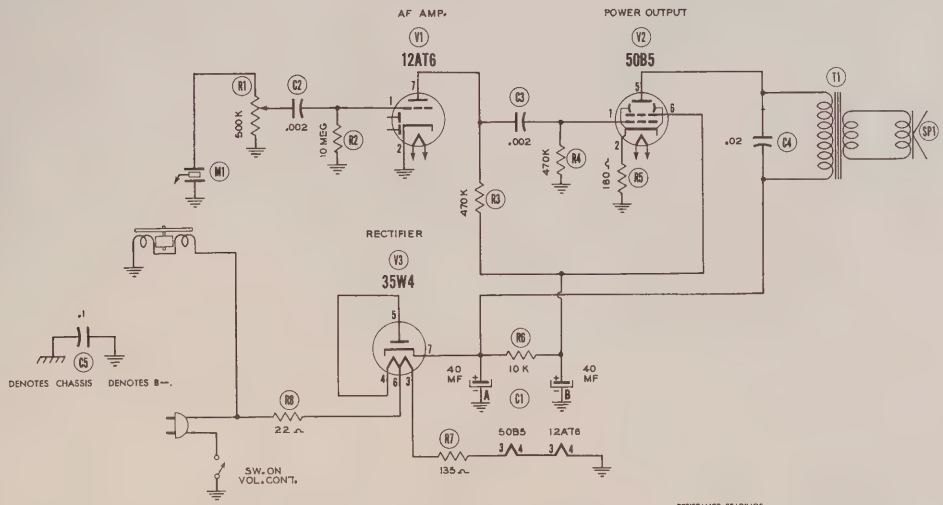
© Howard W. Sams & Co., Inc. 1950

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



MECK MODEL SA-10

TRADE NAME	Meck, Models SA-10, SA-20
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	AC Operated Phono Player with 3 Tube Amplifier
TUBES (THREE)	Types 12AT6 AF Amp., 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC
RATING	.23 Amp. at 117 Volts AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AT6	-.7VDC	0V.	13VAC	0V.	0V.	0V.	35VDC
V 2	50B5	.1VDC	5.3VDC	65VAC	13VAC	125VDC	75VDC	.1VDC
V 3	35W4	78VDC	35VDC	65VAC	110VAC	110VAC	112VAC	130VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AT6	10 Meg.	0Ω	13Ω	0Ω	Inf.	Inf.	†480KΩ
V 2	50B5	470KΩ	180Ω	65Ω	13Ω	†175Ω	†10KΩ	470KΩ
V 3	35W4	†10KΩ	†480KΩ	200Ω	230Ω	230Ω	210Ω	250KΩ

† MEASURED FROM PIN 7 OF V3.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1950

101-4

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. • Indianapolis 1 Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

MECK
MODELS SA-10, SA-20

MECK
MODELS SA-10, SA-20

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Audio Amp.	12AT6	12AT6	7BT	
V2	Power Output	50B5	50B5	7BZ	
V3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150		PRS150/40-40		EDL-4415		TA-440	Filter-Red
B	40	150							Filter-Blue *
C2	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C3	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C4	.02	400		P488-02		PTE4S2		TM-12	Output Plate Bypass
C5	.1	600		P688-1		PTE6P1		TM-1	Line Isolation

* Some models use 10MFD in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½		Q13-133	M-60-Z	B-60-S	Volume control
B	Shaft			RQ	Not Req.	Not Req.	Attach to R1A per instructions
C	Switch			76-1	SW-A	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	IDENTIFICATION CODES
R2	10 Meg.	½		BTS-10 Meg.	AF Amp. Grid
R3	470KΩ	½		BTS-470K	AF Amp. Plate
R4	470KΩ	½		BTS-470K	Output Grid
R5	180Ω	½		BW-½-180	Output Cathode
R6	10KΩ	½		BTS-10K	Filter
R7	135Ω	5			Filament Dropping-Wire Wound
R8	22Ω	1		BW-1-22	Line Dropping

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2900Ω	3.5Ω	175Ω	.4Ω		A-3332 ①	A-3025 ①		① Bend mounting tabs down.

SPEAKER

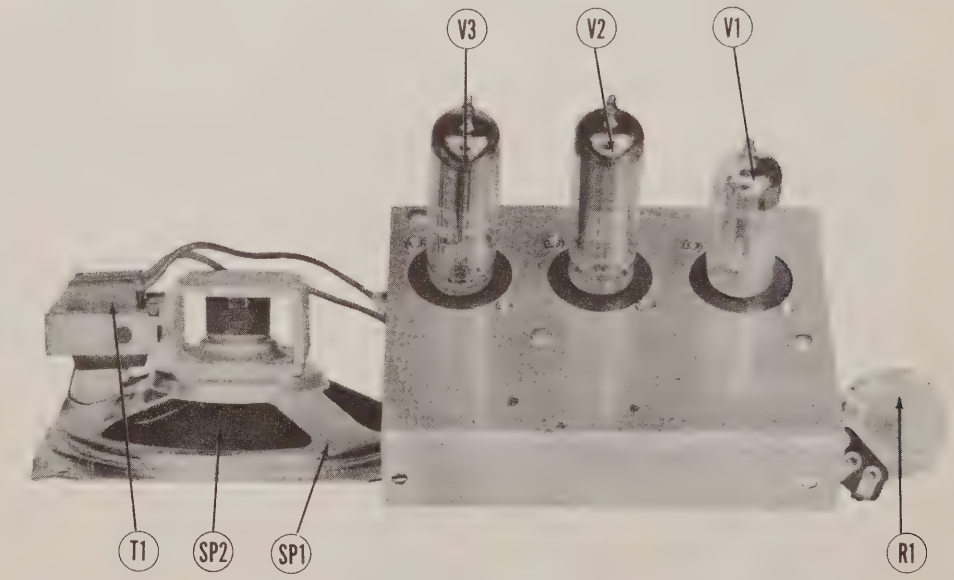
ITEM No.	RATINGS		REPLACEMENT DATA: MECK PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-113		
SP1	PM	3.5Ω		MOD. P4-X	4A07 ②	② Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

PHONO CARTRIDGE and NEEDLE

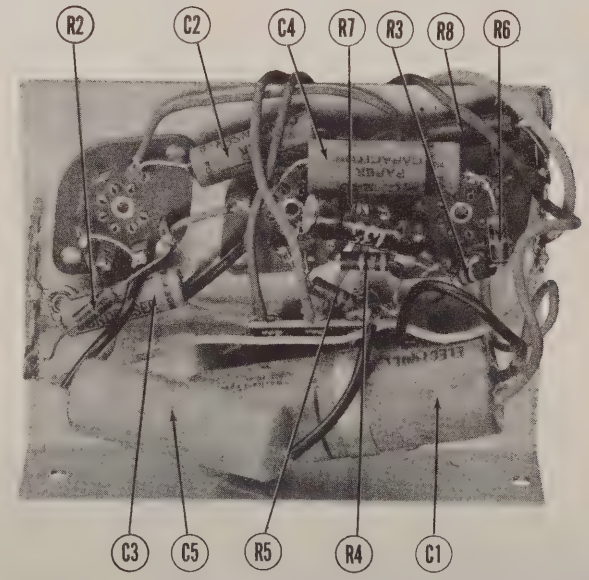
ITEM No.	REPLACEMENT DATA: MECK PART No.	ASTATIC PART No.: CARTRIDGE	ASTATIC PART No.: NEEDLE	SHURE PART No.: CARTRIDGE	SHURE PART No.: NEEDLE	REMARKS
M1		LQD-1J	Q			

ASTATIC AND SHURE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



PHOTOFACT* Folder

*TRADE MARK

MECK MODELS

XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL XQ-776

MECK MODELS
XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785

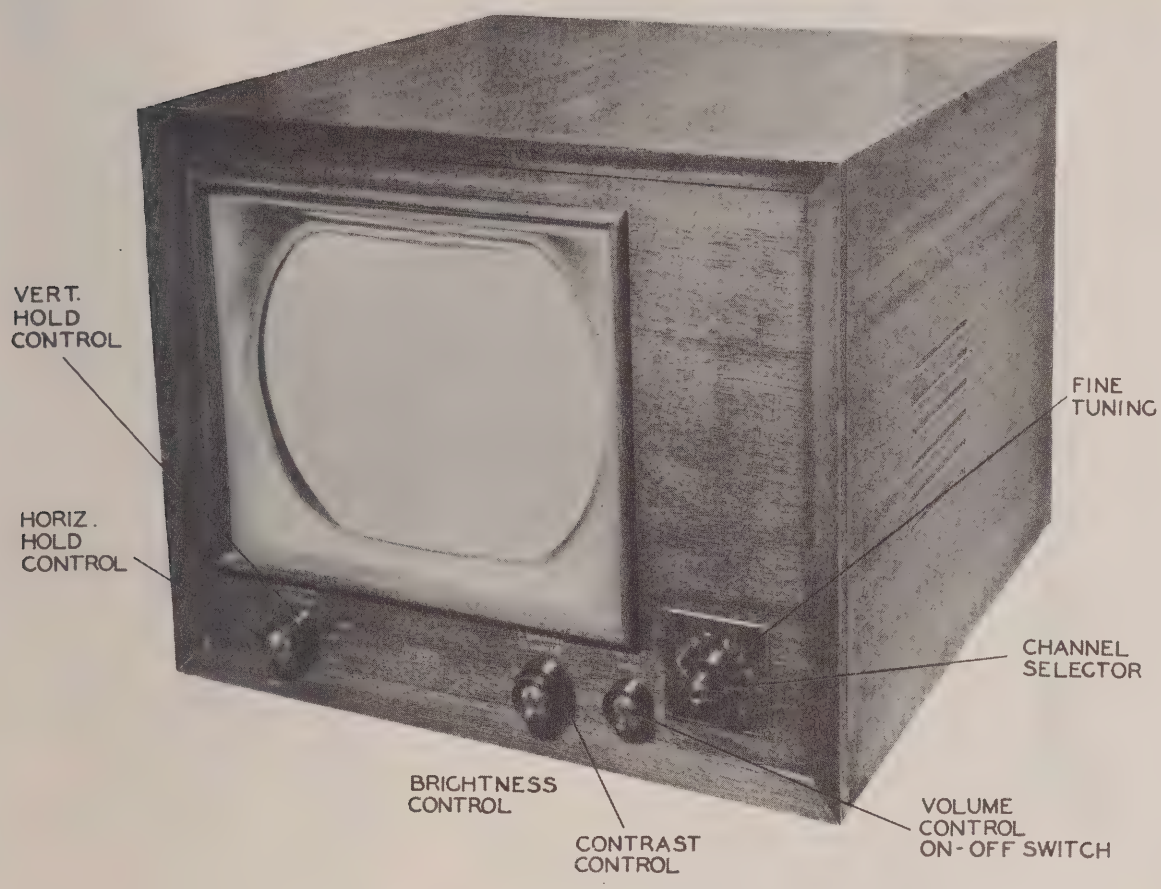
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Date 7/50 Set No. 101—Folder No. 5

PHOTOFACT* Folder

MECK MODELS XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785



MECK MODELS XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785

MECK MODEL XQ-776

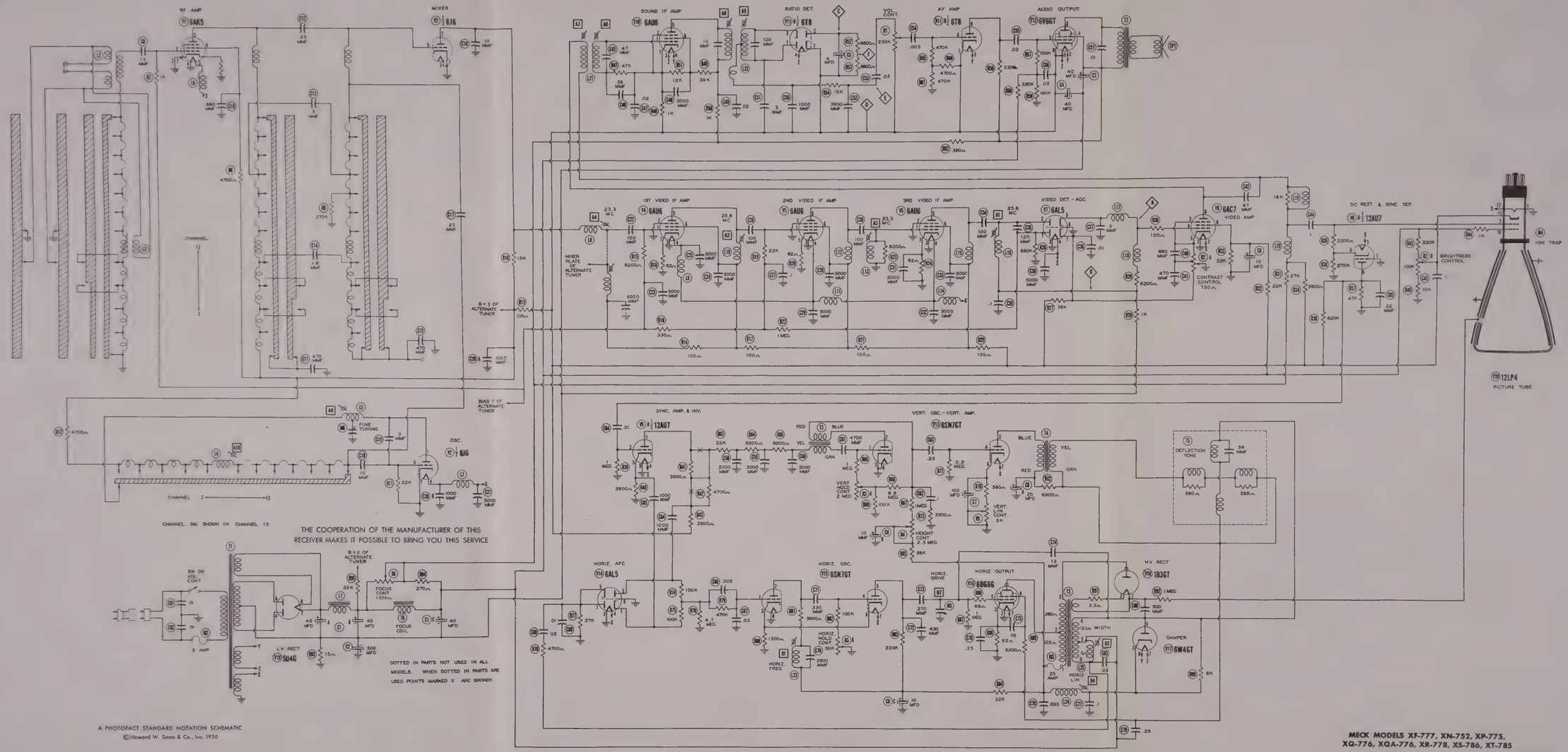
TRADE NAME	Meck Models XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	Television Receiver
TUBES	Nineteen (2 tube tuner) Twenty (3 tube tuner)
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 1.6 Amp. at 117 Volts AC
TUNING RANGE	Channels 2 thru 13

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 13
Horiz. Sweep Circuit Adjustment 13
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 13
Capacitor Identification 11, 18
Chassis-Top View 3, 7
RF Tuner (2 tube) 10
Photographs (continued)
RF Tuner (3 tube) 19
Resistor Identification 12, 17
Trans., Inductor and Alignment Identification 4, 9
Schematic (Main) 2
Schematic (3 Tube Tuner) 20
Tube Placement Chart 5
Voltage and Resistance Measurements 8

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



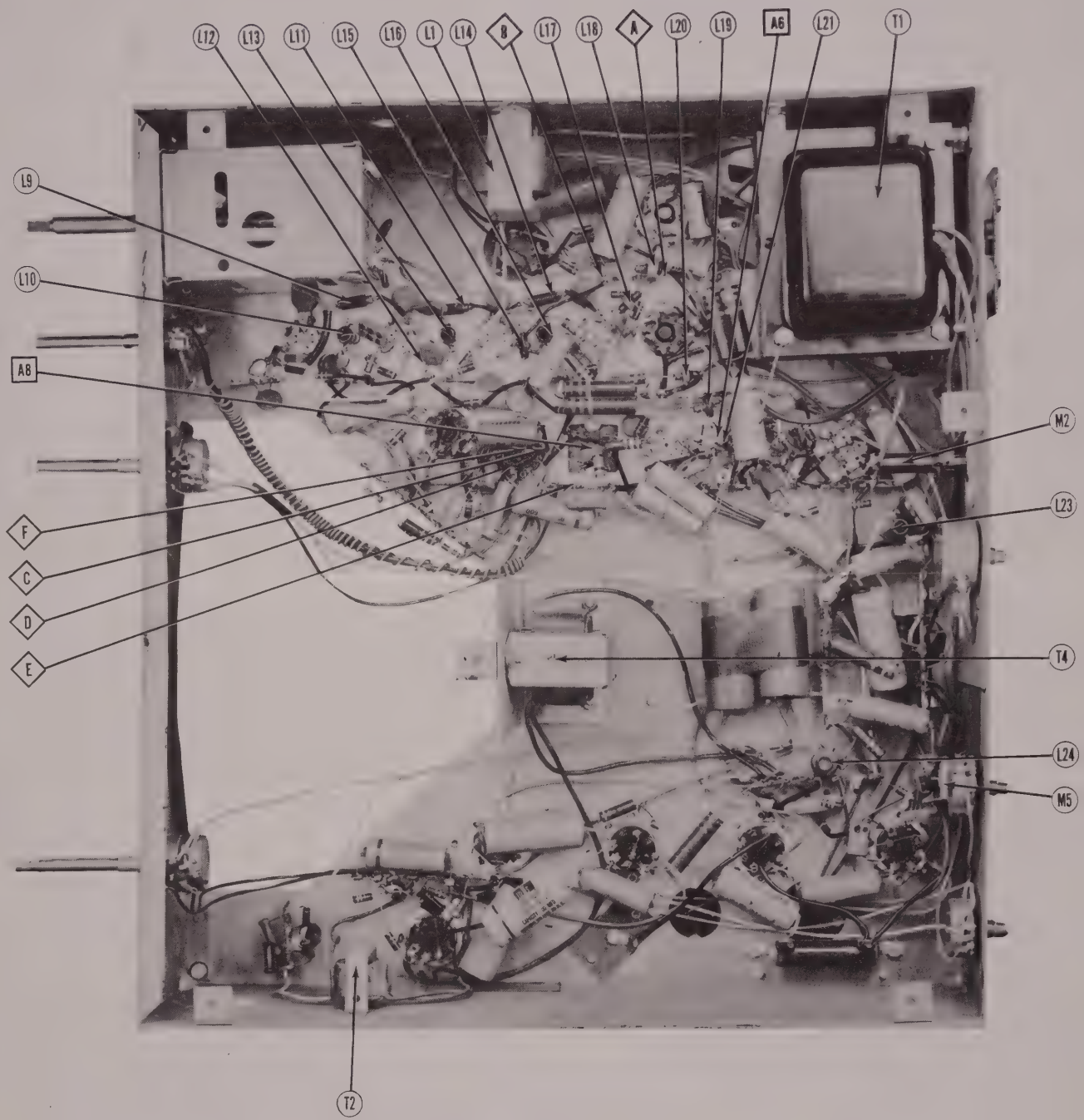
A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1950

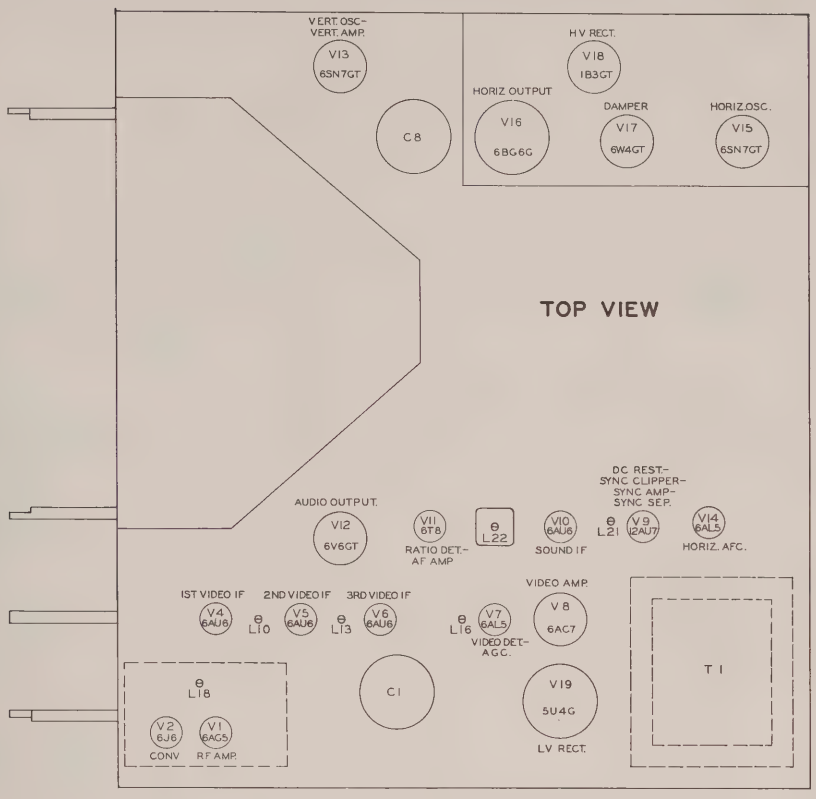
MECK MODELS XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785

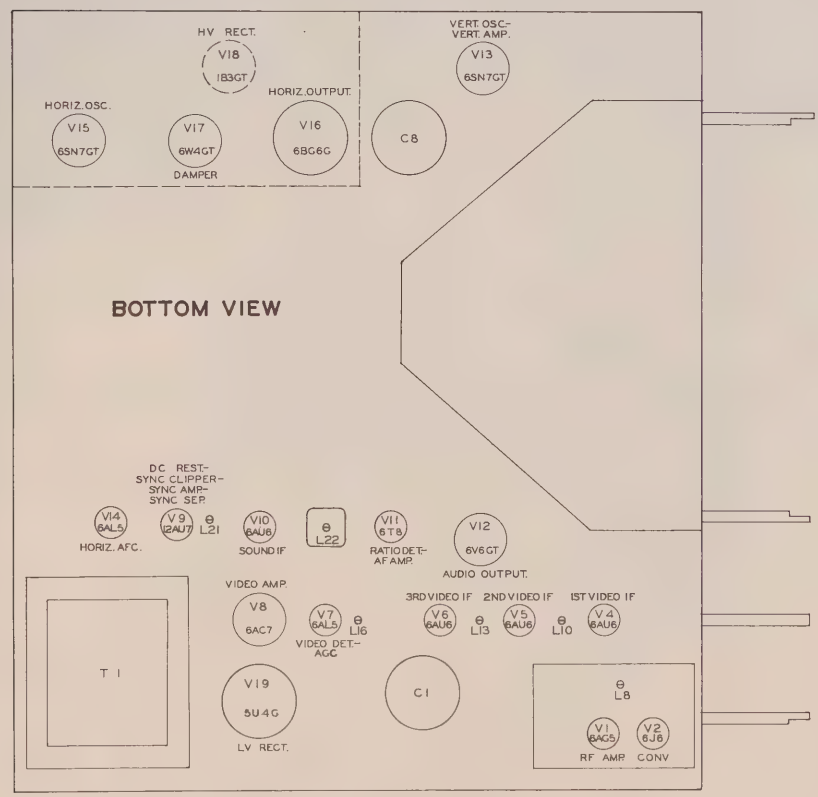
MECK MODELS XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V15) from its socket.

VIDEO IF ALIGNMENT

If the set has the three tube tuner, remove the local oscillator tube (V3) from its socket to prevent erroneous indications. If the set has the two tube tuner, remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed to disable the local oscillator.
Keep output of signal generator as low as possible to maintain a usable reading (not more than 2 volts).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	25.6MC (Unmod.)	Any	DC Probe to Point (A). Common to Point (B).	A1, A2	Adjust for maximum deflection.
2.	Direct	"	23.3MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24MC (10MC SWP)	21.6MC 23.3MC 25.6MC 26.1MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 4 (Grid) of 6AC7 (V8). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (C). Common to Point (D).	A5, A6, A7	Adjust for maximum deflection.
5.	.01MFD	"	"	"	DC Probe to Point (E). Common to Point (F).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 4 (Grid) of 6AC7 (V8). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (C). Low side to chassis.	A5, A6, A7	Remove stabilizer capacitor C5. Adjust for maximum amplitude and symmetry as per figure 2.
5.	.01MFD	"	"	"	"	Vert. Amp. to Point (E). Low side to chassis.	A8	Reconnect capacitor C5. Adjust A8 so 4.5MC occurs at center of crossover lines as per figure 3. Slightly retouch A5 for maximum amplitude and straightness of crossover lines.

(TWO TUBE TUNER) OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point (A). Low side to chassis.	A9	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
7.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check all high band channels to see that the sound marker can be properly placed well within the range of the fine tuning control. If not compromise adjustment of A9 may be necessary.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
8.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A10	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
9.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check all low band channels to see that the sound marker can be properly placed well within the range of the fine tuning control. If not compromise adjustment of A10 may be necessary.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

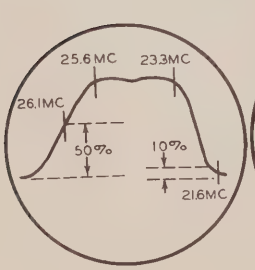


FIG. 1

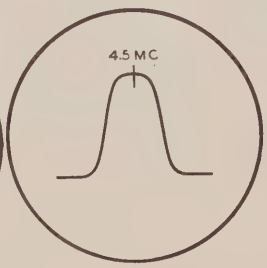


FIG. 2

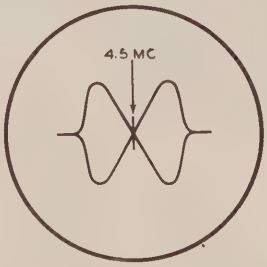


FIG. 3

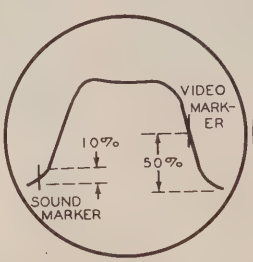


FIG. 4

FIG. 5

(THREE TUBE TUNER)OSCILLATOR ALIGNMENT

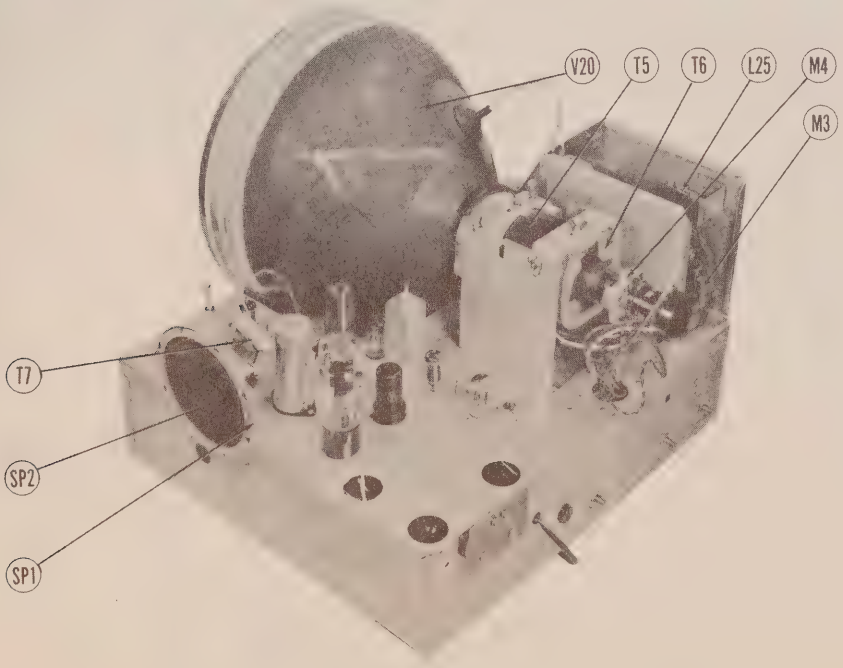
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point (A). Low side to chassis.	A401	Expand or compress coil turns to place sound marker as shown in figure 4. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A402	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A403	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A404	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A405	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A406	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A407	
7.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A408	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
			79MC (10MC SWP)	77.25MC 81.75MC	5		A409	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A410	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A411	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A412	

(THREE TUBE TUNER) RF ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to Point (M). Low side to chassis.	A413, A414	Expand or compress coil turns for response curve similar to figure 5 with markers above 80%.
9.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check all high band channels for response curve similar to figure 5. If markers fall below 70% on any channel, make slight adjustment of A413 and A414 with channel switch set for that channel. Recheck all high band channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
10.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A415, A416	Expand or compress coil turns for response curve similar to figure 5 with markers above 80%.
11.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check all low band channels for response similar to figure 5. If markers fall below 70% on any channel, make slight adjustment of A415 and A416 with channel selector set for that channel. Recheck all low band channels to see that they have not been seriously effected.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			



CHASSIS-TOP VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.2VDC	0V.	6.3VAC	0V.	145VDC	130VDC	0V.		
V 2	6J6	110VDC	85VDC	0V.	6.3VAC	-2VDC	§-6VDC	0V.		
V 3	6C4	NOT USED IN ALL MODELS.								
V 4	6AU6	-.6VDC	0V.	0V.	6.3VAC	145VDC	145VDC	.5VDC		
V 5	6AU6	-.4VDC	0V.	0V.	6.3VAC	145VDC	145VDC	1.2VDC		
V 6	6AU6	0V.	0V.	0V.	6.3VAC	150VDC	150VDC	.9VDC		
V 7	6AL5	.1VDC	-3VDC	0V.	6.3VAC	-.3VDC	0V.	-1.7VDC		
V 8	6AC7	0V.	6.3VAC	1.3VDC	-2.6VDC	1.3VDC	175VDC	0V.	195VDC	
V 9	12AU7	130VDC	0V.	6.3VDC	6.3VAC	6.3VAC	7.1VDC	0V.	1.1VDC	0V.
V 10	6AU6	▲4.8VDC	▲7.5VDC	▲0V.	▲6.3VAC	▲225VDC	▲55VDC	▲7.5VDC		
V 11	6T8	▲-.2VDC	▲-.7VDC	▲-.2VDC	▲0V.	▲6.3VAC	▲0V.	▲0V.	▲-4VDC	▲110VDC
V 12	6V6GT	▲0V.	▲6.3VAC	▲205VDC	▲225VDC	▲-8VDC	▲0V.	▲0V.	▲0V.	
V 13	6SN7GT	15VDC	215VDC 105VDC	0V.	0V.	360VDC	6.2VDC 19VDC	6.3VAC	0V.	
V 14	6AL5	1.8VDC	-1.2VDC	0V.	6.3VAC	0V.	0V.	0V.		
V 15	6SN7GT	.1VDC	265VDC	11VDC	-3.8VDC	110VDC	11VDC	6.3VAC	0V.	
V 16	6BG6G	-1.7VDC	0V.	9.1VDC	0V.	-1.7VDC	0V.	6.3VAC	280VDC	TOP CAP *
V 17	6W4GT	0V.	0V.	460VDC	0V.	380VDC	0V.	▲0V.	▲6.3VAC	
V 18	1B3GT	* DO NOT MEASURE.								
V 19	5U4G	0V.	440VDC	0V.	390VAC	0V.	390VAC	0V.	440VDC	
V 20	12LP4	0V.	1.3VDC	PIN 10 380VDC	PIN 11 140VDC	PIN 12 6.3VAC				

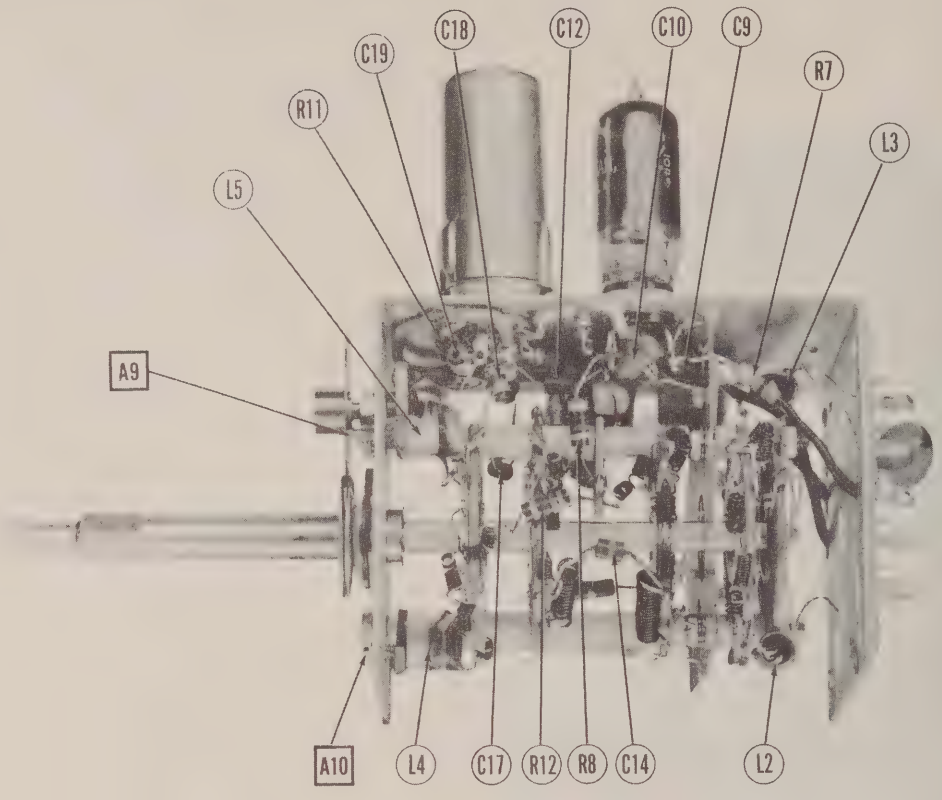
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
▲ MEASURED FROM PIN 8 OF V12.

RESISTANCE READINGS

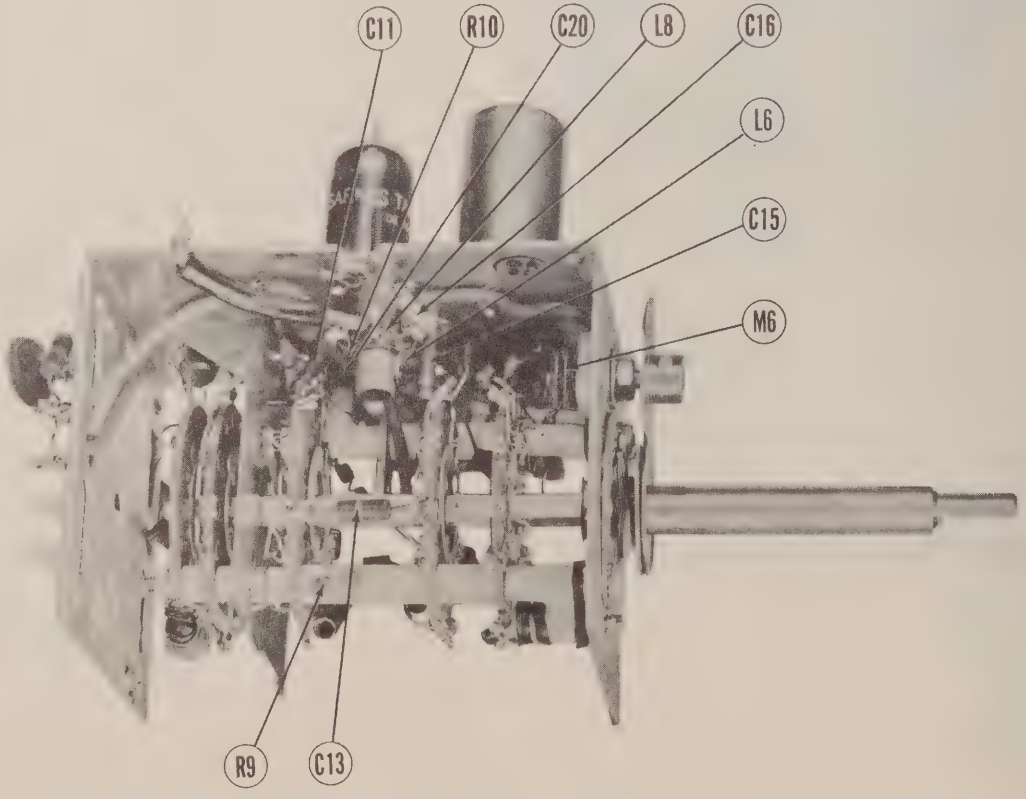
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	1.5 Meg.	0Ω	.1Ω	0Ω	▲100Ω	▲4.8KΩ	0Ω		
V 2	6J6	▲4.8KΩ	▲15KΩ	0Ω	.1Ω	270KΩ	22KΩ	0Ω		
V 3	6C4	NOT USED IN ALL MODELS.								
V 4	6AU6	1.7 Meg.	0Ω	0Ω	.1Ω	▲300Ω	▲300Ω	82Ω		
V 5	6AU6	1.7 Meg.	0Ω	0Ω	.1Ω	▲200Ω	▲200Ω	82Ω		
V 6	6AU6	.2Ω	0Ω	0Ω	.1Ω	▲100Ω	▲100Ω	82Ω		
V 7	6AL5	15Ω	1000Ω	0Ω	.1Ω	9.2KΩ	0Ω	680KΩ		
V 8	6AC7	Inf.	.1Ω	750Ω	9.3KΩ	750Ω	†17KΩ	0Ω	†15KΩ	
V 9	12AU7	▲8KΩ	1 Meg.	3.9KΩ	.1Ω	.1Ω	47KΩ	0Ω	270KΩ	0Ω
V 10	6AU6	▲48KΩ	▲1000Ω	▲0Ω	▲.1Ω	†1000Ω	▲11KΩ	▲1000Ω		
V 11	6T8	Inf.	▲13.6KΩ	Inf.	▲0Ω	▲.1Ω	▲0Ω	▲0Ω	▲475KΩ	†330KΩ
V 12	6V6GT	Inf.	▲.1Ω	†750Ω	†450Ω	280KΩ	Inf.	▲0Ω	▲0Ω	
V 13	6SN7GT	3 Meg.	#1 Meg. #2.5 Meg.	0Ω	2.2 Meg.	#12.8KΩ	5.5KΩ 560Ω	.1Ω	0Ω	
V 14	6AL5	4.8 Meg.	4.8 Meg.	0Ω	.1Ω	27KΩ	0Ω	27KΩ		
V 15	6SN7GT	5 Meg.	#33KΩ	1.5KΩ	150KΩ	#250KΩ	1.5KΩ	.1Ω	0Ω	
V 16	6BG6G	1 Meg.	0Ω	82Ω	Inf.	1 Meg.	Inf.	.1Ω	#15KΩ	TOP CAP #160Ω
V 17	6W4GT	Inf.	Inf.	†6KΩ	Inf.	#6KΩ	Inf.	▲0Ω	▲.1Ω	
V 18	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #400Ω
V 19	5U4G	Inf.	22KΩ	Inf.	60Ω	Inf.	60Ω	Inf.	22KΩ	
V 20	12LP4	0Ω	272KΩ	PIN 10 †1.3KΩ	PIN 11 85KΩ	PIN 12 .1Ω				

FOCUS CONTROL SET FULLY COUNTERCLOCKWISE FOR THESE MEASUREMENTS.
MEASURED FROM PIN 3 OF V17.
† MEASURED FROM PIN 2 OF V19.
▲ MEASURED FROM PIN 8 OF V12.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

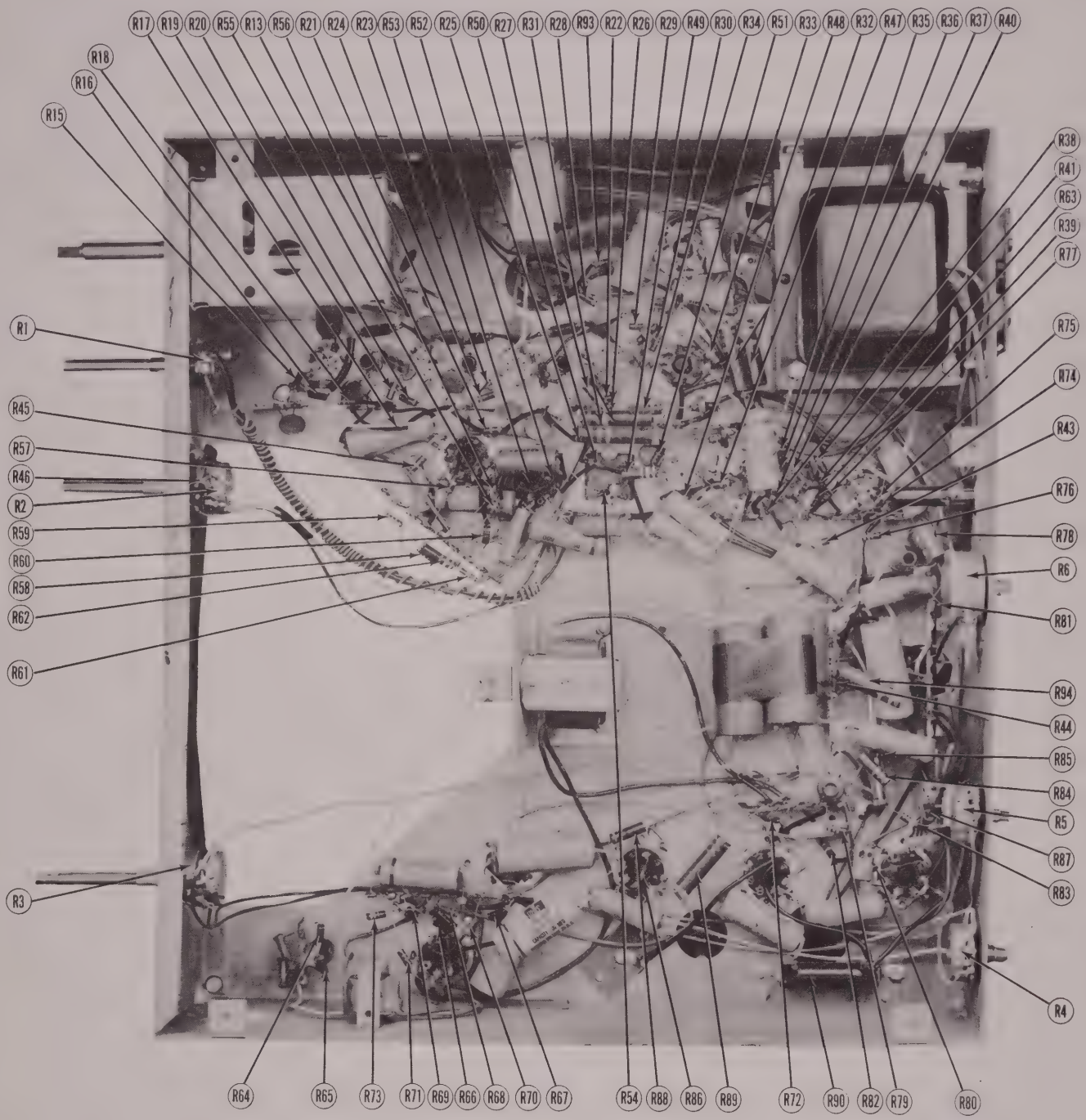


RF TUNER-RIGHT SIDE

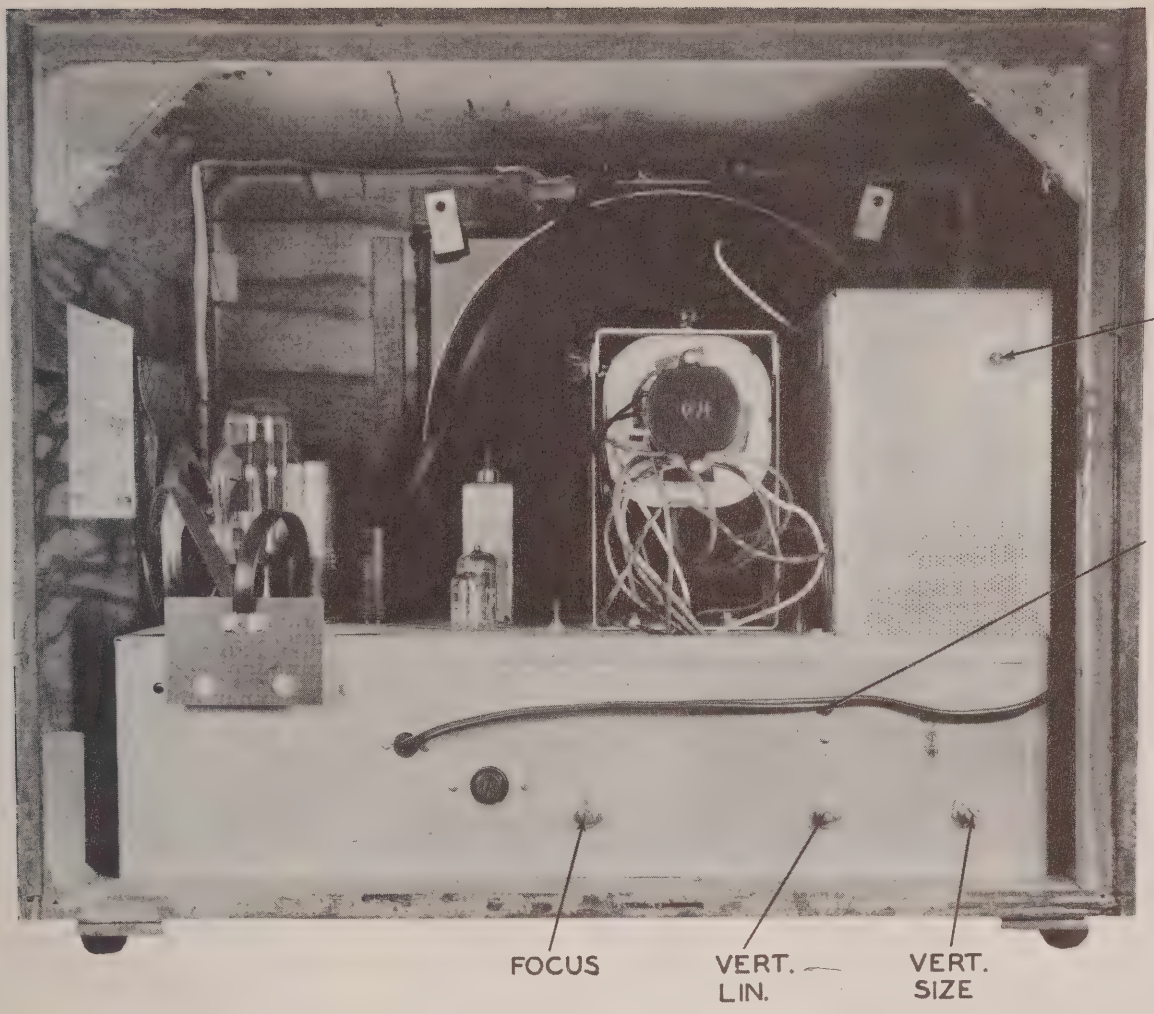


RF TUNER-LEFT SIDE

CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) clockwise as far as possible without crowding the right half of the picture.

Adjust the horizontal size slug (B3) until the picture fills the mask horizontally.

Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right. Readjustment of B2 may be necessary for optimum results.

DISASSEMBLY INSTRUCTIONS

1. Remove seven push-on type control knobs.
2. Remove five 1/4" hex head screws holding rear cover. Remove cover.
3. Disconnect built-in antenna lead at chassis terminal.
4. Remove six 5/16" hex head bolts holding chassis. Remove chassis.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: MECK PART No	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amp.	6AG5 or 6CB6	6AG5 or 6CB6	7BD	Two tube tuner
B	RF Amp	6AK5	6AK5	7BD	Alternate two tube tuner
C	RF Amp.	6AG5	6AG5	7BD	Three tube tuner
V2A	Converter	6J6	6J6	7BF	Two tube tuner
B	Converter	6J6	6J6	7BF	Alternate two tube tuner
C	Mixer	6AG5	6AG5	7BD	Three tube tuner
V3	Oscillator	6C4	6C4	6BG	Three tube tuner
V4	1st Video IF	6AU6	6AU6	7BK	
V5	2nd Video IF	6AU6	6AU6	7BK	
V6	3rd Video IF	6AU6	6AU6	7BK	
V7	Video Det.-AGC	6AL5	6AL5	6BT	
V8	Video Amp	6AC7	6AC7	8N	
V9	DC Rest.-Sync Clipper-Amp.-Sep.	12AU7	12AU7	9A	
V10	Sound IF	6AU6	6AU6	7BK	
V11	Ratio Det.-AF Amp.	6T8	6T8	9E	
V12	Audio Output	6V6GT	6V6GT	7AC	
V13	Vert. Osc.-Vert. Amp.	6SN7GT	6SN7GT	8BD	
V14	Hor. AFC	6AL5	6AL5	6BT	
V15	Hor. Osc.	6SN7GT	6SN7GT	8BD	
V16	Hor. Output	6BG6G	6BG6G	5BT	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rect.	1B3GT	1B3GT	3C	
V19	LV Rect.	5U4G	5U4G	5T	
V20	Picture Tube	12LP4	12LP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No	REPLACEMENT DATA: AEROVOX PART No	REPLACEMENT DATA: CENTRALAB PART No	REPLACEMENT DATA: CORNELL-DUBILIER PART No	REPLACEMENT DATA: ERIE PART No	REPLACEMENT DATA: SPRAGUE PART No	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475	CL-10039	AF6X883				TVL-304	▲ Filter
B	40	450							■ Filter
C	40	450							▲ Filter
C2	500	5	CL-10038	PRS6-500				UHC-506	Bias Filter
C3	40	350	CL-10041	PRS450/40				TVA-24	Output Decoup.
C4	40	350	CL-10041	PRS450/40				TVA-24	Decoupling
C5	4	50	CL-10037	PRS50/4				TVA-13	Stabilizing Cap.
C6	10	250	CL-10057	PRS250/12				UT-122	V. Amp. Screen Bypass
C7	100	25	CL-10009	PRS25/100				TVA-8	Vert. Output Cath. Byp.
C8A	20	450	CL-10040	AFH2222J				TVL-419	▲ Vert. Output Decoup.
B	10	450							■ Vert. Osc. Decoup.
C	10	450							▲ Decoupling
C9	15			GP15K	D6-150		GP1K-15		RF Coupling
C10	680			GP680M	D6-681		GP2K-680		RF Screen Bypass
C11	470			GP470M	D6-471		GP2K-470		RF Plate Decoup.
C12	.25								RF Coupling
C13	.5				D2-.5				RF Coupling
C14	1.8								RF Coupling
C15	470			GP470M	D6-471		GP2K-470		RF Bypass
C16	10			CN10FNPO	D2-10		NPOK-10		Fixed Trimmer
C17	.25								Osc. Coupling
C18	10			CN10FNPO	D2-10		NPOK-10		Osc. Grid Cap.
C19	3			CN3DNPO	D2-3.3		NPOK-3		Osc. Feedback
C20A	1000			GP1000M	D6-102		583-2 x 0015	29C7	RF Bypass
B	1000			GP1000M	D6-102				Osc. Fil. Bypass
C21	5000			BPD-5	D6-502		811-005	29C1	Filament Bypass
C22	100	500		1468-0008	D6-101	5W5T1	GP1K-100	1FM-31	IF Coupling
C23	5000			BPD-5	D6-502	1D5D5	811-005	29C1	AGC Filter
C24	5000			BPD-5	D6-502	1D5D5	811-005	29C1	1st V. IF Decoupling
C25	5000			BPD-5	D6-502	1D5D5	811-005	29C1	1st V. IF Fil. Bypass
C26	100	500		1468-0008	D6-101	5W5T1	GP1K-100	1FM-31	IF Coupling
C27	.1	600		P688-1		PTE6P1		TM-1	AGC Filter
C28	5000			BPD-5	D6-502	1D5D5	811-005	29C1	2nd V. IF Decoup.
C29	5000			BPD-5	D6-502	1D5D5	811-005	29C1	2nd V. IF Fil. Bypass
C30	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	IF Coupling
C31	5000			BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Cath. Byp.
C32	5000			BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Decoupling
C33	5000			BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Decoupling
C34	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	IF Coupling
C35	120			GP120M	D6-121	5W5T1	GP2K-120	1FM-31	IF Coupling
C36	01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	DAGC Decoupling
C37	5			GP5M	D2-4.7	5W5V5	GP1K-5	MS-55	V. Diode Filter
C38	5000			BPD-5	D6-502	1D5D5	811-005	29C1	V. Det.-AGC Fil. Byp.
C39	.1	600		P688-1		PTE6P1		TM-1	Bias Filter
C40	680			GP680M	D6-681	1W5T7	GP2K-680	1FM-37	V. Amp. Cath. Bypass
C41	470			GP470M	D6-471	5W5T5	GP2K-470	1FM-35	V. Amp. Cath. Bypass
C42	47	300		1469-00005	D2-47	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C43	47	300		1469-00005	D3-47	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C44	.1	600		P688-1		PTE6P1		TM-1	Video Coupling
C45	.1	600		P688-1		PTE6P1		TM-1	Pic. Tube Cath. Byp.
C46	39	500		1468-00004	D6-390	5W5Q4	GP1K-39	1FM-44	S. IF Grid Filter
C47	.02	600		P688-02		PTE6S2		TM-12	S. IF Cath. Bypass
C48	5000			BPD-5	D6-502	1D5D5	811-005	29C1	S. IF Screen Byp.
C49	.02	600		P688-32		PTE6S2		TM-12	S. IF Decoupling
C50	1000			GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	Diode Load Cap.
C51	3			CN3DNPO			NPOK-3		Balancing
C52	3900			GP4.0M		1D5D4		1FM-24	De-emphasis
C53	.05	600		P688-05		PTE6S5		TM-15	Audio Coupling
C54	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C55	.02	600		P688-02		PTE6S2		TM-12	Audio Coupling
C56	.05	600		P688-05		PTE6S5		TM-15	Bias Filter
C57	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Output Plate Bypass
C58	2000			GP2000M	D6-202	PTE6D2	GP2M-002	TM-22	Integrator Net.
C59	5000			GP5000M	D6-502	PTE6D5	811-005	TM-25	Integrator Net.
C60	5000			GP5000M	D6-502	PTE6D5	811-005	TM-25	Integrator Net.
C61	4700			GP4700M	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C62	.1	600		P688-1		PTE6P1		TM-1	Vert. Discharge
C63	.25	600		684-25		GT6P25		TC-2	Vert. Sweep Coupling
C64	1000			GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C65	1000			GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C66	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	AFC Filter
C67	.05	600		P688-05		PTE6S5		TM-15	AFC Filter
C68	.05	600		P688-05		PTE6S5		TM-15	Hor. Feedback
C69	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Voltage Divider
C70	3900	500							Fixed Trimmer
C71	330	500		1468-0003	D6-331	5W5T3	GP2K-330	1FM-335	Hor. MV Feedback †
C72	430	500		1469-0004		5R5T4		MS-34	Hor. Discharge
C73	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Hor. Sweep Coupling
C74	13	1500							Hor. Feedback
C75	.05	600		P688-05		PTE6S5		TM-15	Hor. Output Screen Byp.
C76	.25	600		684-25		GT6P25		TC-2	Hor. Output Cath. Byp.
C77	.1	600		P688-1		PTE6P1		TM-1	Damper Filter
C78	.035	600		P688-033					Damper Filter
C79	.25	600		684-25		GT6P25		TC-2	Hor. Sweep Coupling
C80	500	15000			TV2-502				HV Filter
C81	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Line Filter
C82	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Line Filter
C83	.05	600		P688-05		PTE6S5		TM-15	Fixed Trimmer *
C84	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Sync. Coupling *
C85	22	500		1468-000025	D6-250	5W5Q25	GP1K-22	MS-425	Sync. Clipper Plate Byp. *

* Not used in all models.
† Some models use 270MMF in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	250KΩ	½	VC-12119A	QJ3-130	M-64-Z	B-51-S	Volume control
B	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R1A per instructions
R2A	750Ω	½	VC-12118			SBBT-560	Contrast control-panel-tapped at 500Ω
B	100KΩ						Brightness control-rear
R3A	2 Meg.	½		B11-139 *			Vert. hold control-panel
B	50KΩ	½	VC-12117	B11-123 *		SBB-559	Horiz. hold control-rear
C	Shaft End			E-202 *			Attach per instr. in "Concentrikit".
R4A	2.5 Meg.	½	VC-12121	QJ1-239	AM-84-S	AN-83	Height control
B	Shaft		Not Req.	RQ	KSS-3 #	AK-1	Attach to R4A per instructions
R5A	5000Ω	½	VC-12120	QJ1-114	AM-19-S	AN-10	Vert. linearity control
B	Shaft		Not Req.	RQ	KSS-3 #	AK-1	Attach to R5A per instructions
R6	15000Ω	4	VC-12122		10-1500 #	SVS-928	Focus control-Wire Wound

* Additional parts to be used with "Concentrikit".
# File slot in shaft to duplicate original.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ARE ± 20% UNLESS OTHERWISE STATED.
R7	1000Ω 10%	1		BTS-1000	RF Grid
R8	4700Ω 10%	1			RF Screen
R9	270KΩ	1		BTS-270K	Conv. Coil Shunt
R10	15KΩ	1			Conv. Plate
R11	22KΩ	1			Osc. Grid
R12	4700Ω 10%	1			Osc. Plate
R13	100Ω	1			Decoupling
R14	100Ω	1			Decoupling-See Note 1
R15	8200Ω	1			1st Video IF Grid
R16	82Ω	1			1st Video IF Cathode
R17	100Ω	1			1st Video IF Decoupling
R18	330Ω	1			AGC Network
R19	22KΩ	1			2nd Video IF Grid
R20	82Ω	1			2nd Video IF Cathode
R21	100Ω	1			2nd Video IF Decoupling
R22	1 Meg.	1		BTS-1 Meg.	AGC Network
R23	8200Ω	1			3rd Video IF Coil Shunt
R24	82Ω	1			3rd Video IF Cathode
R25	100Ω	1			3rd Video IF Decoupling
R26	680KΩ	1		BTS-680K	AGC Rect. Diode Load
R27	39KΩ	1		BTA-39K	Voltage Divider
R28	1000Ω	1		BTS-1000	Bias Network
R29	8200Ω	1		BTS-8200	Video Det. Diode Load
R30	120Ω	3			Parasitic Supp.
R31	27KΩ	4			Video Amp. Plate-See Note 2
R32	22KΩ	3			Video Amp. Screen-See Note 3
R33	22KΩ	1		BTA-22K	Voltage Divider
R34	5600Ω	1		BTA-5600	Voltage Divider
R35	2200Ω			BTS-2200	Picture Tube Grid
R36	270KΩ			BTS-270K	DC Rest. Load
R37	47KΩ			BTS-47K	DC Rest. Load-See Note 1
R38	820KΩ			BTS-820K	Voltage Divider-See Note 4
R39	1 Meg.			BTS-1 Meg.	Sync. Sep. Grid-See Note 1
R40	3900Ω			BTS-3900	Sync. Sep. Cathode
R41	3900Ω			BTS-3900	Sync. Sep. Plate-See Note 5
R42	4700Ω			BTS-4700	Sync. Sep. Plate-See Note 1
R43	3900Ω			BTS-3900	Sync. Sep. Plate
R44	1000Ω			BTS-1000	Acc. Anode Decoupling
R45	220KΩ			BTS-220K	Voltage Divider
R46	10KΩ			BTS-10K	Voltage Divider
R47	47KΩ				Sound IF Grid-See Note 6
R48	1000Ω				Sound IF Cathode
R49	39KΩ				Sound IF Screen
R50	1000Ω			BTS-1000	Sound IF Decoupling
R51	12KΩ			BTS-12K	Voltage Divider
R52	6800Ω			BTS-6800	Ratio Det. Diode Load
R53	6800Ω			BTS-6800	Ratio Det. Diode Load
R54	15KΩ			BTS-15K	De-emphasis
R55	470KΩ			BTS-470K	AF Amp. Grid
R56	330KΩ			BTS-330K	AF Amp. Plate
R57	100KΩ			BTS-100K	Output Grid
R58	330KΩ 5%			BTS-330K-5%	Voltage Divider

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R59	180KΩ 5%	½		BTS-180K-5%	Voltage Divider
R60	4700Ω	½		BTS-4700	Voltage Divider
R61	470KΩ 10%	½		BTS-470KΩ	Voltage Divider
R62	390Ω	1		BTA-390	Filter
R63	22KΩ	½		BTS-22K	Integrator Network
R64	8200Ω	½		BTS-8200	Integrator Network
R65	8200Ω	½		BTS-8200	Integrator Network
R66	1 Meg.	½		BTS-1 Meg.	Vert. Osc. Grid-See Note 7
R67	1 Meg.	½		BTS-1 Meg.	Vert. Osc. Plate
R68	6.8 Meg.	½		BTS-6.8 Meg.	Voltage Divider
R69	100KΩ	½		BTS-100K	Voltage Divider
R70	560Ω	½		BTS-560	Vert. Amp. Cathode
R71	2.2 Meg.	½		BTS-2.2 Meg.	Vert. Amp. Grid
R72	6800Ω	½		BTS-6800	Vert. Amp. Decoupling-See Note 8
R73	3300Ω	½		BTS-3300	Vert. Peaking
R74	100KΩ	½		BTS-100K	Horiz. Phase Det. Load
R75	100KΩ	½		BTS-100K	Horiz. Phase Det. Load
R76	4.7 Meg.	½		BTS-4.7 Meg.	Horiz. Phase Det. Load
R77	27KΩ	½		BTS-27K	Feedback Network
R78	4700Ω	½		BTS-4700	Feedback Network
R79	470KΩ	½		BTS-470K	Horiz. AFC Filter Network
R80	1500Ω	½		BTS-1500	Horiz. Osc. Cathode
R81	5600Ω	½		BTS-5600	Horiz. Osc. Plate
R82	100KΩ	½		BTS-100K	Horiz. Osc. Grid
R83	220KΩ 10%	½		BTS-220K	Horiz. Osc. Plate-See Note 9
R84	22KΩ	1		BTA-22K	Filter
R85	56KΩ	½		BTS-56K	Decoupling
R86	68Ω	½			Parasitic Supp.
R87	1 Meg.	½		BTS-1 Meg.	Horiz. Output Grid
R88	82Ω	1		BW-1-82	Horiz. Output Cathode
R89	8200Ω	2		BT-2-8200	Horiz. Output Screen-See Note 11
R90	6000Ω 10%	20		DG-6000	Damper Filter-Wire Wound
R91	3.3Ω	1			HV Rect. Filament
R92	1 Meg.	1			HV Filter
R93	15Ω	½		BW-½-15	Bias Network
R94	270Ω	2		BW-2-270	Focus Coil Shunt-See Note 10
R95	22KΩ	2		BT-2-22K	Voltage Dropping-See Note 1

Note 1. Not used in all models.
Note 2. Some models use two 56KΩ, 2 watt resistors in parallel to obtain required resistance and wattage.
Note 3. Some models use a 43KΩ, 2 watt and a 56KΩ 2 watt resistors in parallel to obtain required resistance and wattage.
Note 4. Some models use 1 Meg. resistor in this application.
Note 5. Some models use 22KΩ resistor in this application.
Note 6. Some models use 470KΩ resistor in this application.
Note 7. Some models use 680KΩ resistor in this application.
Note 8. Models using 16" picture tube use 2700Ω resistor in this application.
Note 9. Some models use 270KΩ resistor in this application.
Note 10. Some models use 330Ω resistor in this application.
Note 11. Models using 16" picture tube use 6800Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ⓖ 1.7A	720VCT .200ADC	5VAC ⓖ 3A	6.3VAC ⓖ 5A SEC. 4 6.3VAC ⓖ 2.7A	TP-10003			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2A	200Ω	1000Ω	TOA-10030 ⑤	A-8111 ④	A-3000 ④	TBO-1 ④	Vert. Block Osc. Trans.
B	230Ω	800Ω	TO-10022 ⑤	A-8121	A-4000	TBO-1 ④	Vert. Block Osc. Trans.
T3A	385Ω	13.6Ω	TO-10020 ⑥	A-8128	HVO-3	TFB-3	Hor. Output Trans.
	Tap ⓖ 125Ω	Tap ⓖ .5Ω					
		SEC. 2 0Ω					
B	295Ω Tap ⓖ 102Ω	11Ω Tap ⓖ .5Ω	TO-10028 ⑦				Hor. Output Trans.
		SEC. 2 0Ω					
T4A	760Ω	8Ω	TO-10021-D ⑩	A-8113	A-3036	TSO-5 ④	Vert. Output Trans.
B	560Ω	7Ω	TO-10021 ⑩	A-8116	A-3035 ③	TSO-4 ③	Vert. Output Trans.
T5A	14Ω		TO-10026	DY-1	MD-3		Hor. Deflection Coil
B	62Ω						Vert. Deflection Coil
T6	295Ω		TO-10025	FC-10	MF-1		Focus Coil

④ Drill one new mounting hole.
⑤ Either T2A or T2B may be used in this application.
⑥ Used in 10" and 12" models.
⑦ Used in 16" models.
③ Drill new mounting holes.
⑩ Either T4A or T4B may be used.

MECK MODELS XF-777, XN-752, XP-775, XQ-776, XQA-776, XR-778, XS-786, XT-785

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MECK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	4.5KΩ	3.3Ω	300Ω	.7Ω	Part of SP1	A-3877 ⑧	A-2930 ⑧	RO-8 ⑧	⑧ Bend mounting tabs down and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MECK PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD RES.	V. C. IMP.		ST-105 ⑨		
SP1A	PM	3.3Ω	SR-10019	MOD. P5-X	5A07 ⑨	⑨ Remount output transformer.
B	PM	3.3Ω	SR-10020	ST-117 MOD. P8-T	8A21	⑩ Replace output transformer to match 6-8Ω voice coil.
C	PM	3.3Ω	ST-10021	ST-120 ⑩ MOD. P10-S	10A31	
	CONE DIA.	V. C. DIA.				
SP2A	4 3/4"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∽)	MECK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.200ADC	32Ω	1.5 Henry	LG-10021	C-2325 ④	C-2974	TR-4200 ④	④ Drill one new mounting hole.

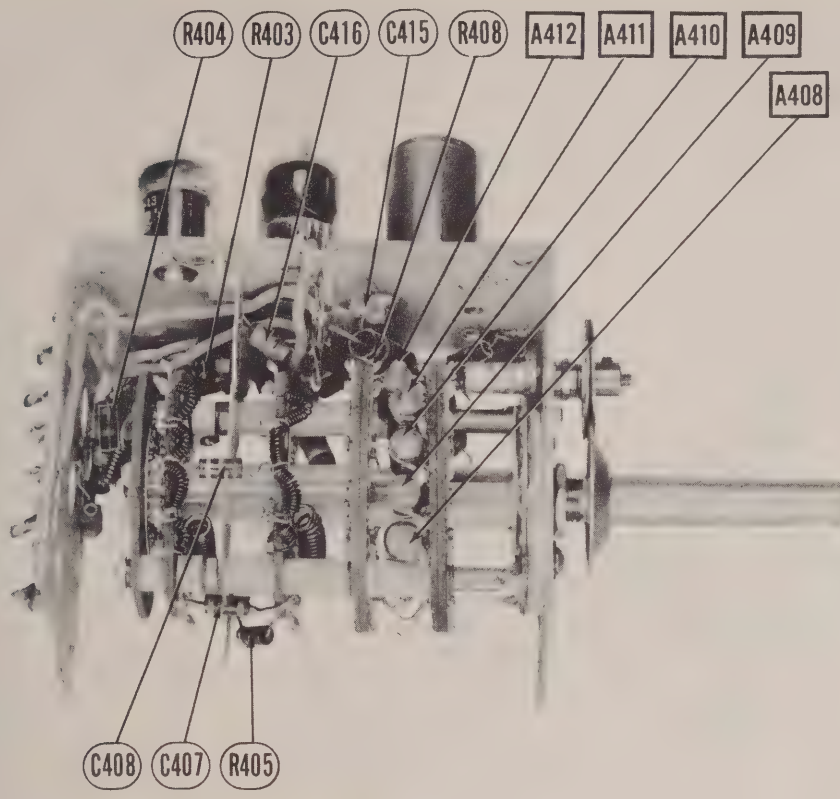
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω				Low Band
L3	Ant. Coil	0Ω				High Band
L4	Osc. Coil	.1Ω				Channel 6
L5	Osc. Coil	.1Ω				Channel 13
L6	Fil. Choke	.1Ω				
L7	Fil. Choke	.1Ω				
L8	1st Video IF	.3Ω				
L9	Fil. Choke	0Ω		LG-10019		
L10	2nd Video IF	.1Ω				
L11	Fil. Choke	0Ω		LG-10019		
L12	RF Choke	4.5Ω		LG-10020		
L13	3rd Video IF	.1Ω				
L14	Fil. Choke	0Ω		LG-10019		
L15	RF Choke	4.5Ω		LG-10020		
L16	4th Video IF	.1Ω				
L17	Peaking	9.3Ω		LG-10014	19-1921	120 microhenries
L18	Peaking	22.5Ω		LG-10016		600 microhenries
L19	Peaking	10Ω		LG-10018	19-1921 †	Wound on 18KΩ resistor 150 microhenries
L20	Peaking	14Ω		LG-10016		600 microhenries
L21	Sound IF	1.9Ω	1.9Ω			
L22	Ratio Det. Trans.	4.9Ω	.2Ω			
L23	Ringing	110Ω				
L24	Horiz. Lin.	39Ω		TO-10024		
L25	Horiz. Size	.2Ω		TO-10023		

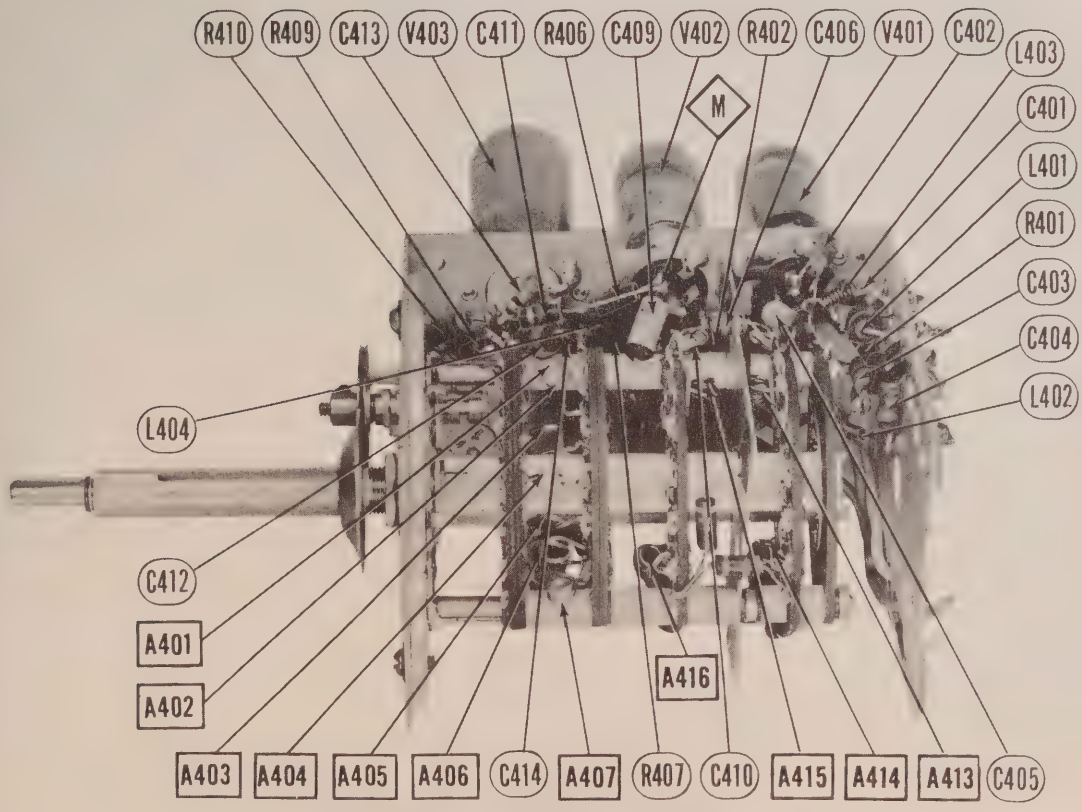
† Add 18KΩ resistor in parallel.

MISCELLANEOUS

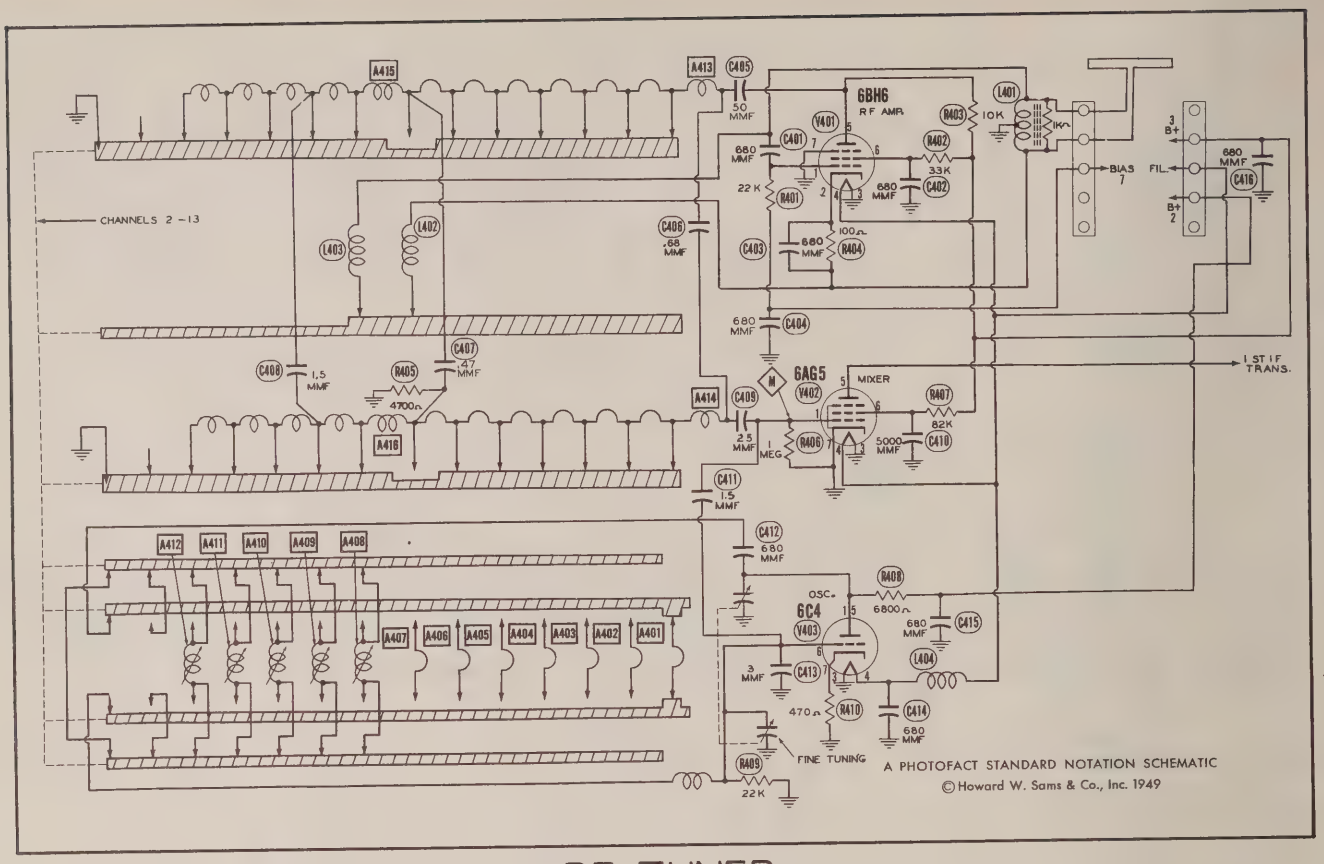
ITEM No.	PART NAME	MECK PART No.	NOTES
M1A	RF Tuner		Two tubes
B	RF Tuner		Three tubes
M2	Fuse		5A 250V Type 3AG
M3	Fuse		.25A 250V Type 3AG
M4	Ion Trap		
M5	Trimmer		Horiz. drive
M6	Trimmer		Fine Tuning
	Knob	K-10083	Volume
	Knob	K-10084	Channel selector
	Knob	K-10085	Fine Tuning
	Knob	K-10086	Vert. hold, Horiz. hold, Contrast, Brightness (Inner dual control)
	Knob	K-10087	Vert. hold, Horiz. hold, Contrast, Brightness, (Outer dual control)



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE



RF TUNER

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	
V401	RF Amp.	6BH6	7CM	
V402	Mixer	6AG5	7BD	
V403	Oscillator	6C4	6BG	

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	IDENTIFICATION
R401	22KΩ	½	RF Grid
R402	33KΩ	½	RF Screen
R403	10KΩ	1	RF Plate
R404	100Ω	½	RF Cathode
R405	4700Ω	½	Mixer Coil Shunt
R406	1 Meg.	½	Mixer Grid
R407	82KΩ	½	Mixer Screen
R408	6800Ω	1	Osc. Plate
R409	22KΩ	½	Osc. Grid
R410	470Ω	½	Osc. Cathode

CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT	IDENTIFICATION
C401	680		RF Coupling
C402	680		RF Screen Bypass
C403	680		RF Cathode Bypass
C404	680		Bias Filter
C405	50		RF Coupling
C406	.68		RF Coupling
C407	.47		RF Coupling
C408	1.5		RF Coupling
C409	25		RF Coupling
C410	5000		Mixer Screen Bypass
C411	1.5		Osc. Coupling
C412	680		Osc. Feedback
C413	3		Osc. Feedback
C414	680		Filament Bypass
C415	680		RF Bypass
C416	680		RF Bypass

COILS

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	
L401	Ant. Input	0Ω		Wound on powdered iron core & 1000Ω resistor
L402	Ant. Input High Band	0Ω		
L403	Ant. Input High Band	0Ω		
L404	Fil. Choke	0Ω		

SERIES 700 FLP
RECORD CHANGER

FIG. 1—TOP VIEW

SERIES 700 FLP
RECORD CHANGER

GENERAL INFORMATION

The Series 700FLP record changer is of the single-post type, featuring two-button control and eccentric spindle cam record selection. It is designed to play automatically the 33⅓ R.P.M. Microgroove records and the standard 78 R.P.M. records. The last record will be repeated until the changer is turned off. The pickup arm support is so designed to prevent damage to the mechanism if the pickup arm is handled during any part of the change cycle.

Parts should be ordered from the manufacturer of the receiver using this changer.

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS INDIANA

COPYRIGHT 1948 • ALL RIGHTS RESERVED

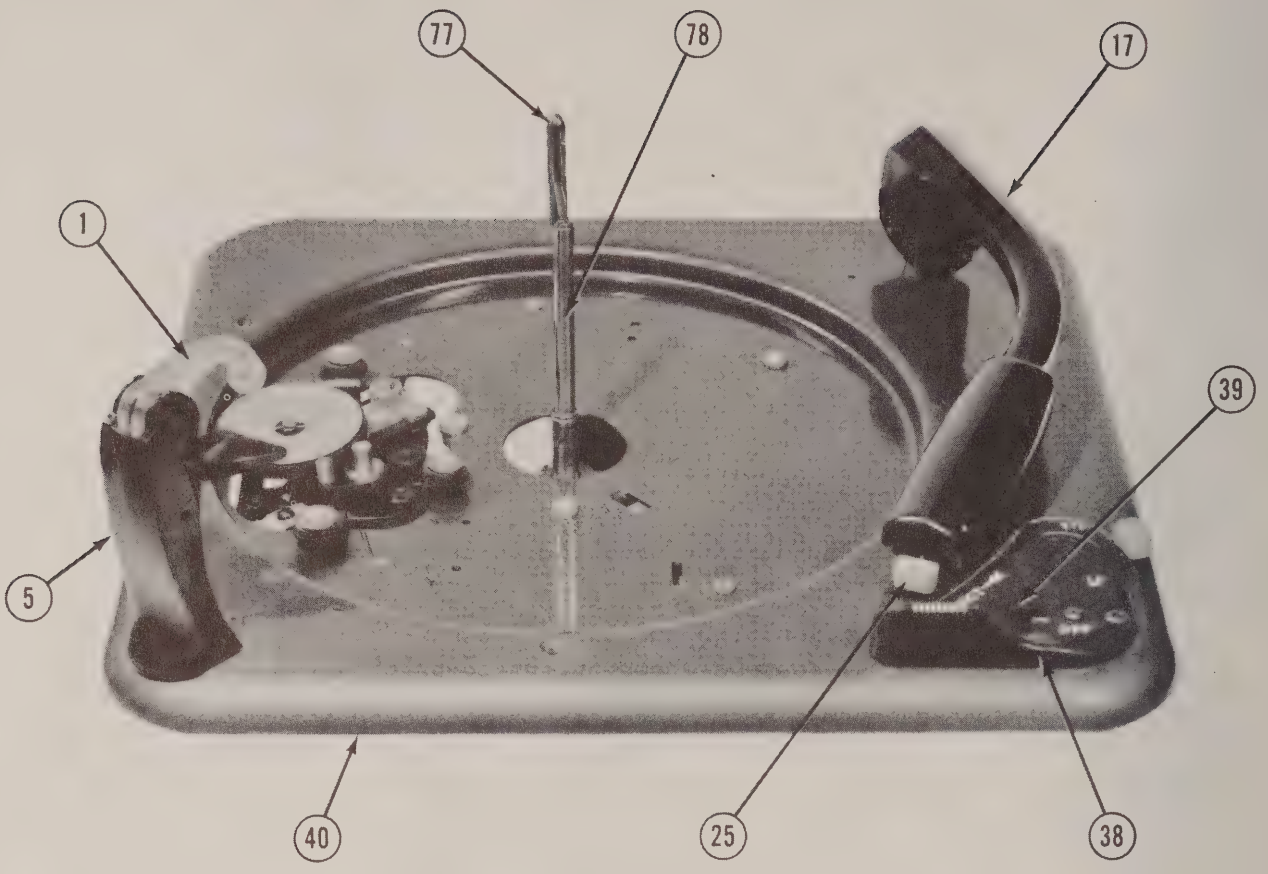


FIG. 2—TOP VIEW LESS TURNTABLE

AUTOMATIC OPERATION

1. Raise the record stabilizer (1) to its vertical position.

2. Move the record support (5) toward the spindle for 10-inch records, and away from the spindle for 12-inch records.

3. Place the records to be played on the spindle so they will rest on the record support (5) and the eccentric (80), or step of the spindle.

4. Lower the record stabilizer to the record.

5. Move the "On-Off" switch (39) to the "On" position.

6. Push the switch plate (38) in the direction indicated by the arrow. This sets the changing mechanism into operation, dropping the first record to the turntable. The changer will now play the entire stack of records and will continue playing the last record until the changer is shut off.

7. A record may be rejected at any time, while playing, by moving the switch plate.

8. To stop the changer, move the "On-Off" switch (39) toward the spindle; raise the tone arm and move it out to its rest position.

9. Raise the record stabilizer.

10. Remove the records from the turntable.

CAUTION: Never try to remove records when changer is in middle of cycle. Always allow changer to complete cycle.

MANUAL OPERATION

1. Raise the record stabilizer (1) to its vertical position.

2. Push the record support (5) into the 12-inch position.

3. Place the record to be played on the turntable.

4. Move the "On-Off" switch to the "On" position.

5. Lift the tone arm to disengage it from its rest, and place the pickup arm on the record.

6. After the record is completed, turn the "On-Off" switch (39) to the "Off" position, and place the tone arm on its rest.

OPERATION FOR PLAYING MICROGROOVE RECORDS

Before playing Microgroove records, it is necessary to pivot the crystal cartridge by turning the pivot knob (25) to the "LP" position. Failure to do so will result in damage to record. The knob on the speed-control lever (52) must also be moved to the "LP" position. This changes the speed of the turntable from 78 R.P.M. to 33⅓ R.P.M., and reduces the weight of the tone arm.

The function of the change cycle for 33⅓ R.P.M. records is the same as for 78 R.P.M. records.

FUNCTION OF LINKAGE FOR 33⅓ AND 78 R.P.M. OPERATION

The control lever (52) has two functions: to change the idler wheel speed and to change the weight of the tone arm, measured at the point of the stylus. In the "LP" position, link (A) of control linkage (52) is in such a position that spring (46) is lax. In this position, the counterweight (49) is so adjusted on the back of the lift and sweep lever (51) that it gives between 4 and 9 grams needle pressure. Link (B) of control linkage (52) actuates an assembly on the motor which causes a belt-driven and larger diameter idler shaft to drive the idler wheel, which, in turn, drives the turntable at a speed of 33⅓ R.P.M. When the control knob of control linkage (52) is moved to the "STD" position, link (A) moves toward the front of the baseplate, placing forward pressure above the pivot point of the tone arm support (34A) by means of spring (46), increasing the weight of the tone arm. Link (B) of control shaft (52) again actuates an assembly on the motor, causing the idler

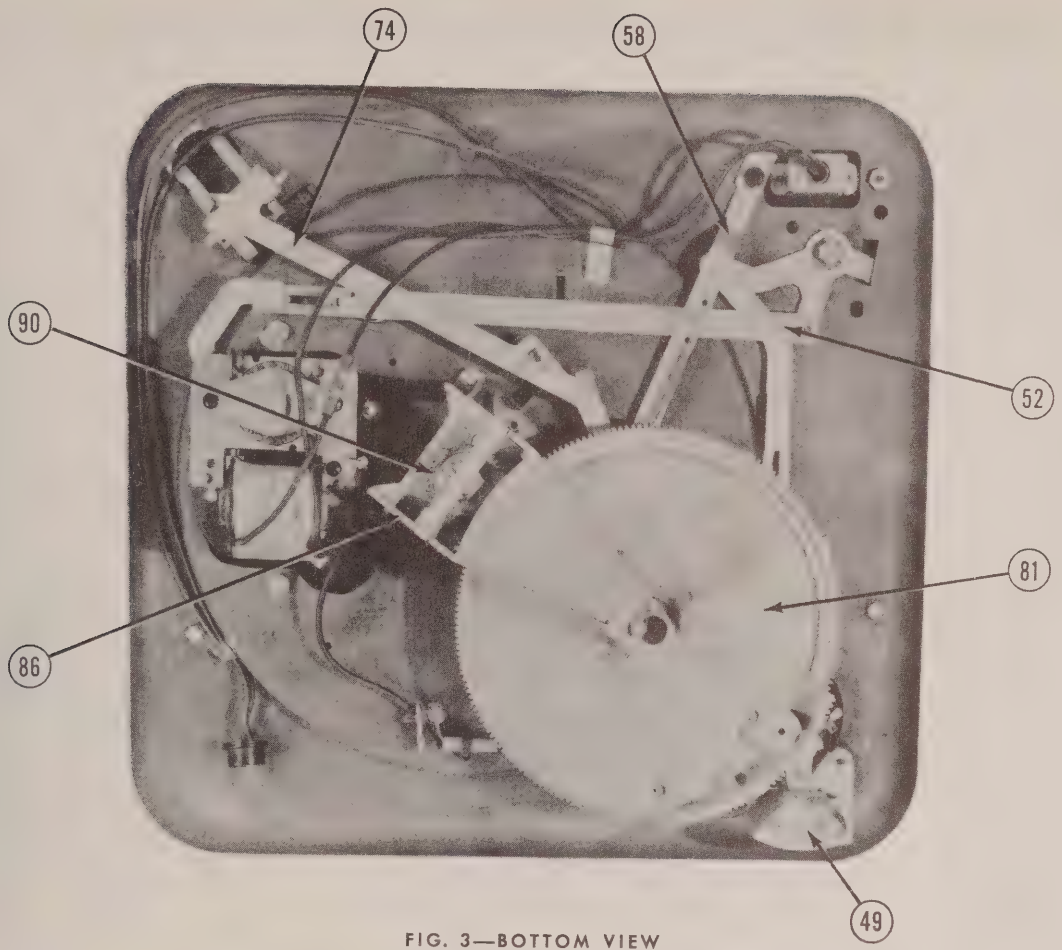


FIG. 3—BOTTOM VIEW

wheel to be driven by the main motor idler shaft which drives the turntable at 78 R.P.M.

CHANGE CYCLE

When the switch button (39) is turned to the "On" position, power is supplied to the motor, causing the turntable (60) to rotate. The automatic mechanism is then put into operation by moving the switch plate (38) in the direction indicated by the arrow. By this action, the reject trip lever (58), which is connected to the switch plate, is pulled against the cam trip actuator (82). This moves the cam trip actuator enough to allow the spring-loaded pinion actuating lever (85) to raise, which, in turn, lifts the brass pinion (15). As a result, the finger of the adjustable driving collar (10), which is fastened to the turntable hub, engages a projection on the brass pinion. This sets the pinion (15) and the cam (81) in rotation. A single revolution of the main cam performs all of the required change cycle function.

As the main cam rotates, the pin of the sweep lever (51) rides up the incline and into the groove of the cam. This action raises the tone arm and swings it out to clear the record. At this point of cam rotation, the 10-inch and 12-inch indexing is determined. This is accomplished by means of the frog (81A) of the main cam, which is moved from one side to the other by the 10-inch actuating lever (74). When the record support is in the 10-inch position, the actuating lever is lowered; therefore, as the cam rotates, the pin of the frog comes in contact with the lever and is moved away from the center, setting the indexing track for 10-inch positioning.

The spring-loaded actuating lever (85) is automatically reset with the trip actuator (82) by the cam (86A) of the positioning bracket (86).

The extended section of teeth of the main cam now engages and rotates the pinion (90), which, in turn, rotates the eccentric assembly (80), thus selecting and dropping a record to the turntable. After the record has been dropped, the wide portion on the cam moves away from the pinion. The eccentric is now aligned with the lower part of the spindle and is held in this position by a leaf spring (87) which detents into a slot in the underside of the pinion (90).

The sweep lever pin (51) now moves into the inner indexing track, moving the tone arm in and positioning it for 10-inch set down. The end of the frog is designed so that when it comes in contact with the sweep lever pin it will be pivoted inward, setting the indexing track for 12-inch positioning. This operation is repeated in each change cycle; i.e., when the record support is in the 10-inch position. However, when the record support (5) is in the 12-inch position, the actuating lever (74) is raised above the frog, keeping the frog in position which leads to the 12-inch track.

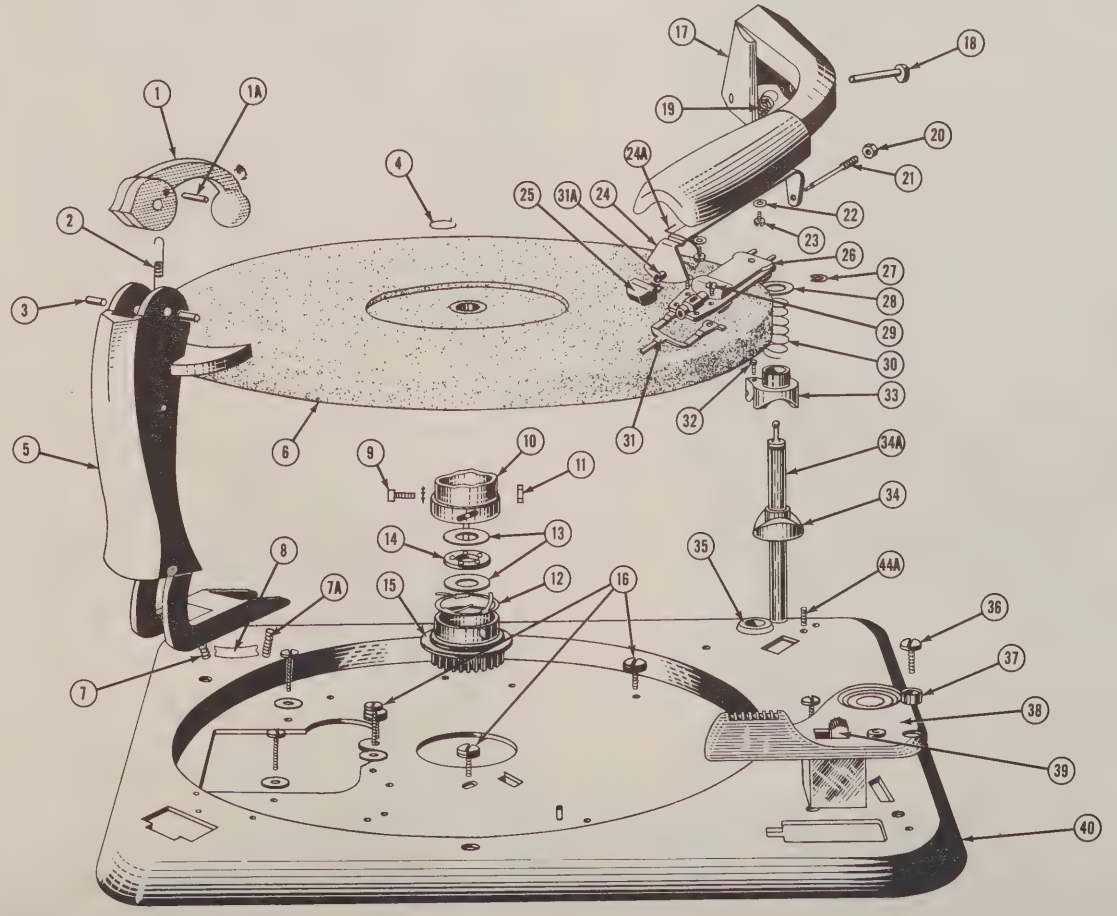
The sweep lever pin (51) now rides down the incline of the main cam, lowering the tone arm to the record. The washer mounted on the floating brass pinion (15) drops into a depression on the top edge of the rim of the cam, disengaging it from the driving collar (10). The main cam is now held in this position by the ground spring (50). This completes the change cycle.

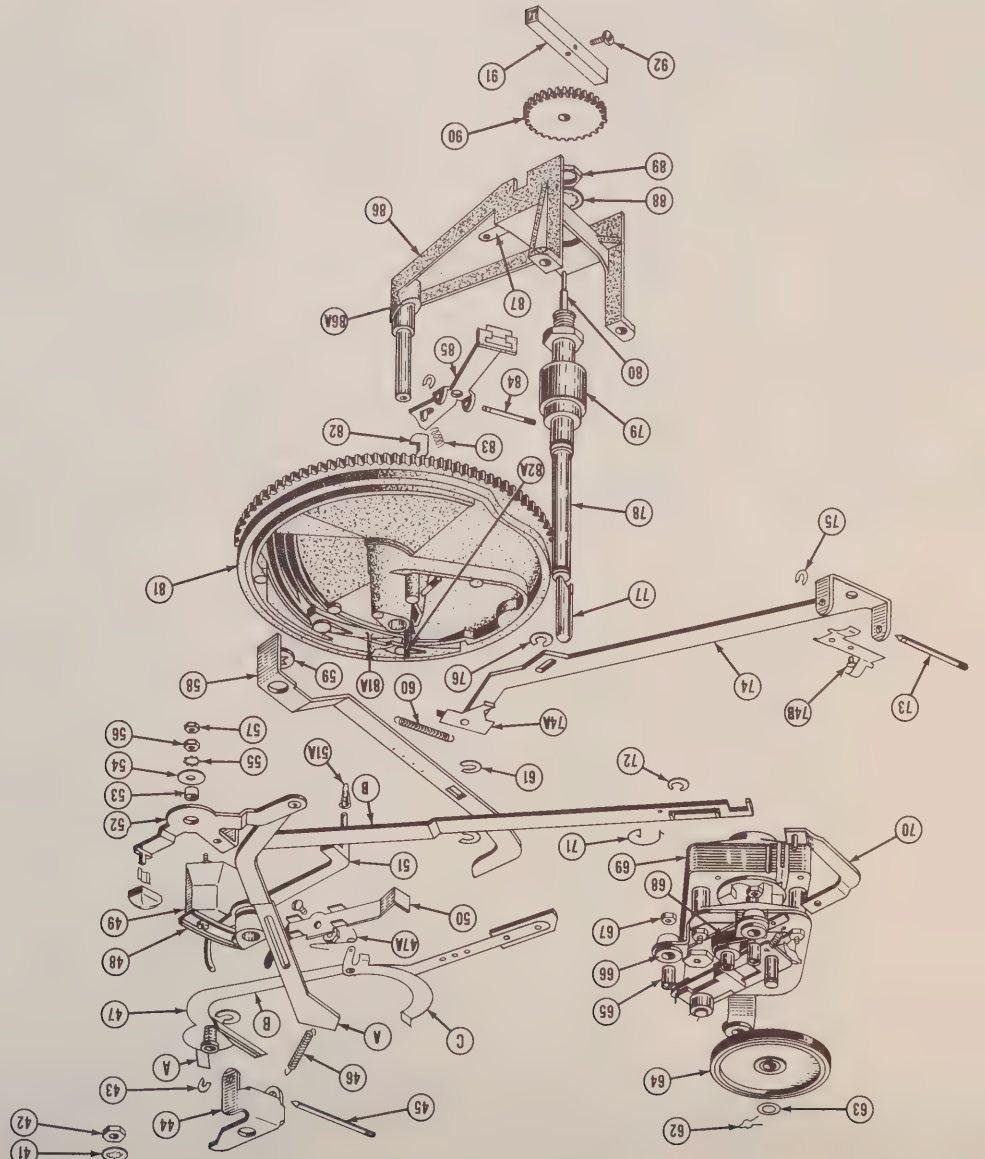
Velocity Trip

The velocity trip assembly (47) is composed of three parts: The "V" lever (A), the trip lever (B), and the velocity trip actuator (C). The "V" lever and the trip lever work as a friction clutch. As the tone arm moves toward the center of the record, the sickle-shaped portion of the sweep lever (51) comes into contact with one leg of of the "V" lever, causing the trip lever to move toward the spindle. This inward movement of the trip assembly continues until the tip of the trip lever (B) is in range of the finger on the adjustable collar (15). Once this position is attained, and as long as the movement of the needle toward the spindle is less than ⅛" per revolution, the tip of the trip lever will be pushed away from the spindle. This means that the friction clutch slips a corresponding amount;

A PHOTOFACT "EXPLODED" VIEW

©Howard W. Sams & Co., Inc. 1948




91
92
90
89
88
86
87
86A
85
84
80
82
83
79
82A
78
81
75
77
58
59
81A
60
76
74
74A
74B
73
56
57
55
54
53
52
51A
B
61
72
71
70
69
68
51
49
50
67
48
47A
66
65
47
B
A
C
A
64
46
43
63
44
45
42
62
41

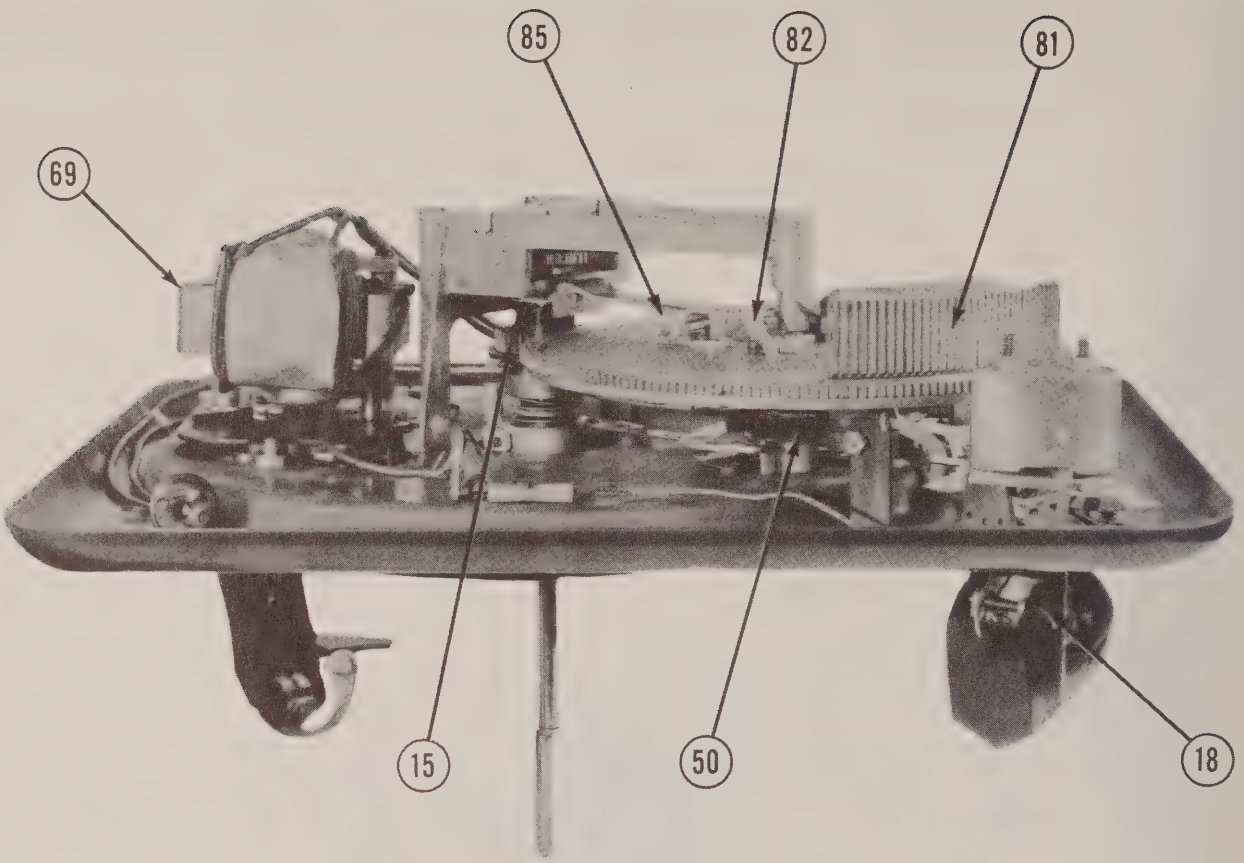


FIG. 4—BOTTOM VIEW BACK

however, when the needle moves into the fast lead-in groove, the trip lever moves in rapidly allowing the velocity trip actuator (C) to slide off the flat surface of the cam trip actuator (82). As a result, the next revolution of the collar (10) will force the trip lever outward causing the crescent lever to pull against the trip actuator enough to unlatch the actuating pinion lever (85), thus starting a change cycle.

ADJUSTMENTS

Tone Arm Set-Down Point

The changer has an eccentric pin (18) in tone arm and the bottom cam (34) is press-fitted to the support rod (34A). To check the adjustment, place a 10-inch record on the turntable, move the record support to the 10-inch position and turn the changer on. Observe the landing of the tone arm on the record. Turning the eccentric pin (18) gives the pickup arm a slight horizontal movement. However, if a large adjustment is necessary, due to the looseness of the set screw in the sweep lever (5), the following adjustment is necessary. Remove the power plug, trip the changer by pulling on the switch plate (38). Rotate the turntable in a clockwise direction until the tone arm starts to drop to the record. At this point the sweep lever (5) is securely held by the 10-inch index groove in the main cam. Loosen the set screw so the support rod (34A) is free to turn. Move the tone arm over the starting groove of the record and hold it in this position while tightening the set screw. A minor adjustment may now be made by the eccentric pin (18).

Tone Arm Height

When the tone arm is in proper adjustment, the needle should clear a stack of twelve 10-inch records. To vary the height of the tone arm, the ball tip on the tone arm support (34A) may be bent forward slightly to lower the tone arm, while bending the ball back lifts the tone arm.

If the tone arm is set too high to play the first record, turn the set screw (44A), which is located directly behind the tone arm in the base plate, in a counterclockwise direction to lower the arm.

Record Support Adjustment

The record support (5) is adjusted correctly when a record is aligned with the lower part of the spindle (78) and the edge of the record clears the record support (5) by approximately 1/64"; i.e., with the record support in the correct position for the size of record to be played.

To vary the clearance for 10-inch records, adjust set screw (7), located on the bottom of the record support; for 12-inch records, adjust screw (7A).

Spindle Alignment

The eccentric cam (80) should be aligned with the lower part of the spindle (78) when the changer is out of cycle. To adjust, rotate the pinion (90) until the detent spring (87) engages the detent in the pinion, loosen the set screws in the pinion, align the eccentric (80) with the spindle (78), and tighten the set screws.

The spindle cap (77) should be in a position so that the slide is facing the center of the record support (5). To align the spindle cap, loosen the set screw (92), turn the spindle cap to its correct position, and tighten the set screw. There should be approximately .005" total vertical play in the spindle assembly to prevent binding.

Ten-Inch and Twelve-Inch Indexing Adjustment

When the record support (5) is in the 12-inch position, the spring plate on the end of the actuating lever (74) is elevated so that it clears frog (81A) by approximately 1/16 inch, leaving it in an inward position. When the record support is in the 10-inch position, the spring plate on the actuating lever is in a lowered position, thereby moving

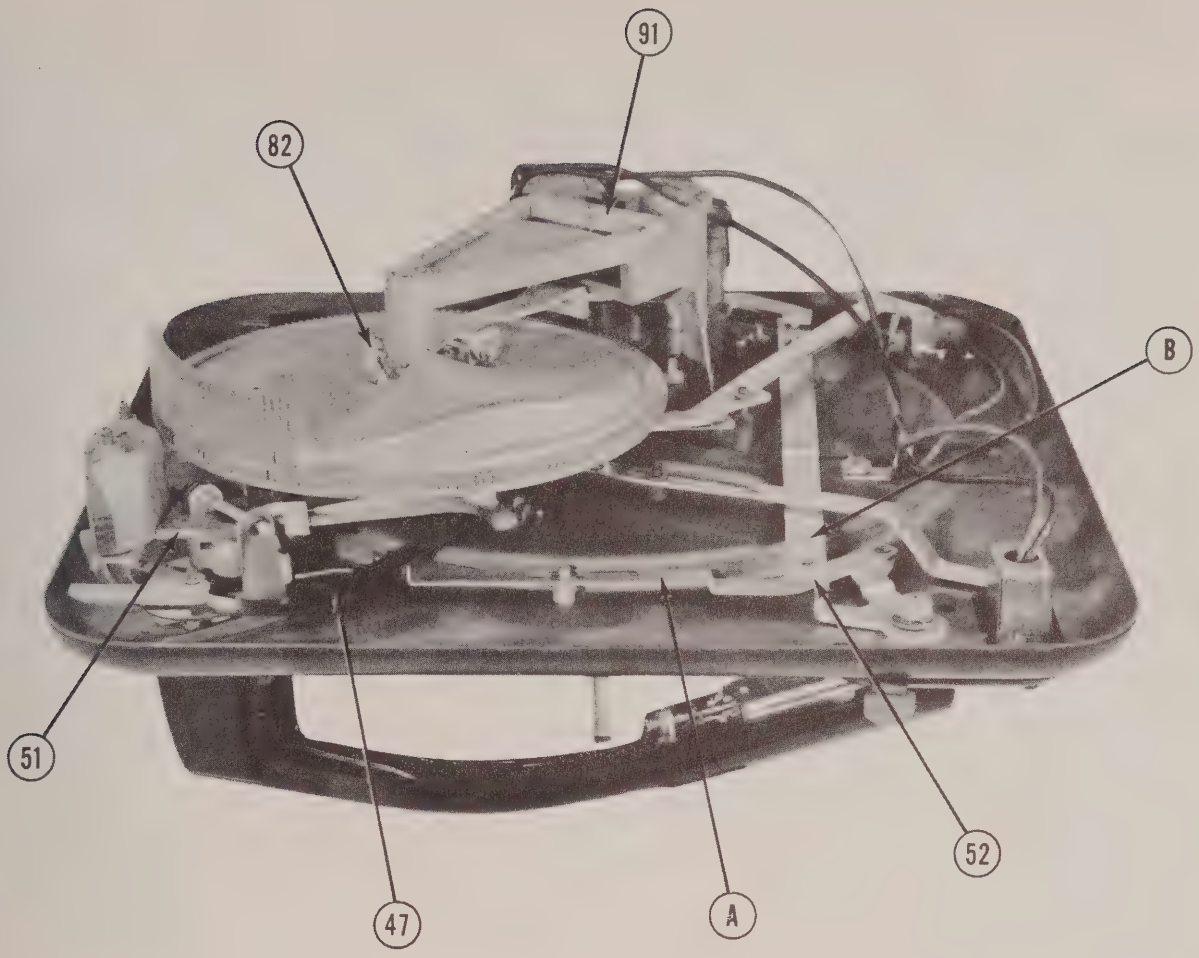


FIG. 5—BOTTOM VIEW RIGHT SIDE

the frog outward as it comes in contact with the spring.

The frog is so constructed that it will be reset in the 12-inch position each time the sweep lever pin goes past it. If necessary, the plate should be bent into the correct position to meet these requirements.

TROUBLES

Records Do Not Drop to Turntable When Changer Cycles

1. Check the thickness of the record.

2. Spindle out of alignment. See "Spindle Alignment" under Adjustments.

3. Check the record support for proper adjustment. See "Record Support Adjustment."

4. Pinion (90) may be loose on the eccentric shaft (80).

Two Records Drop at a Time

1. Check the thickness of the records. They should not be less than .070" at the center hole.

2. Check the slide in the spindle cap (77) for binding. The slide, when fully lowered, prevents more than one record from being dropped to the turntable. If slide is in a raised position during cycling, several records may drop at once.

3. Check the record support adjustment.

Failure to Trip

1. Spring (47A) on the trip assembly (47) loose.

2. Velocity trip actuator (C) of the trip assembly (47) binding in an outward position. If this is so, the cam trip actuator (82) will not be moved when the velocity trip lever is actuated by the adjustable collar (10).

3. By moving the "V" lever (A), check the trip assembly (47) to see if it rotates freely and does not bind on the reject trip lever (58) or base plate. The friction clutch should not slip when the trip lever moves over its free path.

4. Check between drive pinion (15) and lower bearing sleeve (79) for grit. Drive pinion must slide freely on lower bearing sleeve.

5. Check the leg of the adjustable collar (10). Collar should be adjusted so that leg engages projection on drive pinion by at least 1/32".

Continuous Tripping

1. Check the leg on the adjustable collar (10). It should clear the drive pinion (15) by approximately 1/32"; i.e., when the fiber disc on the drive pinion is resting in the cut-out in the main cam.

2. Check spring (12) to see if it is pushing the pinion down as the main cam returns to home position.

3. Check the velocity trip assembly (47) for binding.

4. Check the reject trip lever (58) for binding.

5. Check the changer to see if it is level. Tilting a changer may cause it to trip continuously.

6. Check the pinion (15) for binding.

LUBRICATION

Factory lubrication should be sufficient for a long period of service; however, if it becomes necessary to lubricate, do so as follows:

Use light machine oil in all moving parts (where necessary), except the turntable shaft and pinion (15), main cam (81), and the eccentric pinion (90).

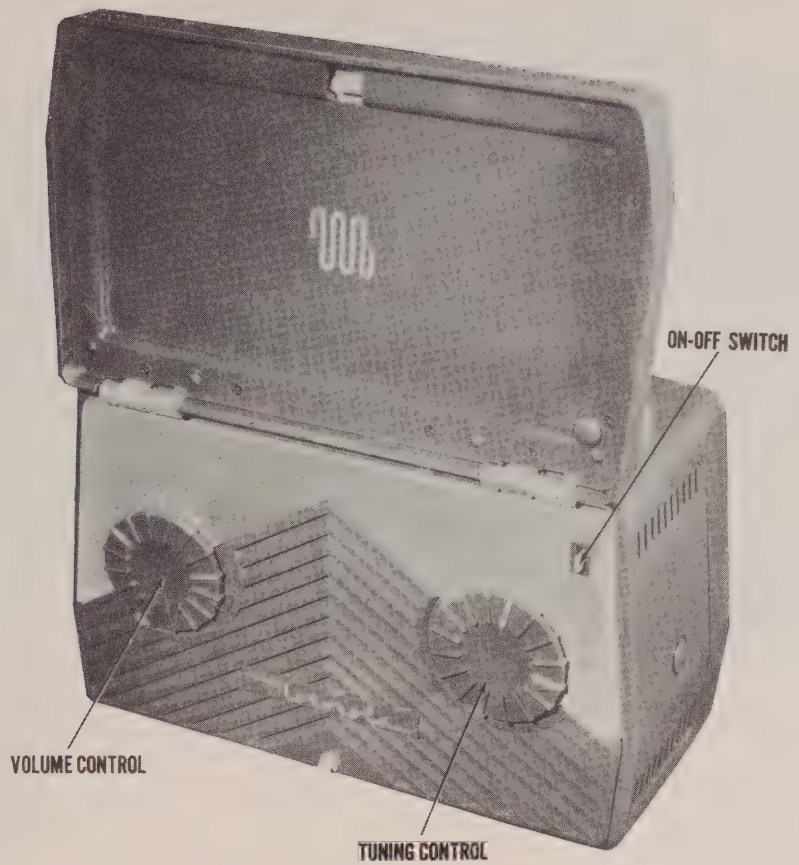
Use a good light grease on the turntable shaft and pinion (15); the cam tracks; frog (81A); teeth of the main cam (81), and the detent of the pinion (90).

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	55-73613	Record stabilizer finger
1A	12-73120	Pin-stabilizer
2	33-73349	Spring
3	12-74596	Stud
4	33-73610	Clip
5	62-74535	Record support
6	66A75025	Turntable assembly
7	20875	Set screw
7A	20875	Set screw
8	33-74543	Spring lock
9	9214	Screw
10	65-73595	Driving collar
11	1022-A	Nut
12	33-75452	Pinion spring
13	32-72485	Washer
14	30A72491	Thrust bearing assembly
15	28A73704	Pinion assembly
16	1333-A	Screw
17	69-75506	Tone arm
18	12-75361	Eccentric pivot pin
19	33-74053	Spring
20	1047-A	Pivot pin lock nut
21	12-75612	Screw stud
22	1697-W	Lockwasher
23	1486-A	Screw
24	10-75593	Pivot bracket
24A	33-75568	Spring
25	39-75518	Pivot knob
26	63-75596	Crystal cartridge
27	32-18893	"C" washer
28	32-74055	Washer
29	1486-A	Pickup mounting screw
30	33-73340	Spring
31	10-75562	Pivot finger yoke
31A	65-75707	Sleeve
32	1417-A	Screw
33	43-73113	Tone arm top cam
34	43-73069	Tone arm bottom cam
34A	12-72975	Tone arm support
35	37-73772	Grommet
36	1399Y	Screw
37	65-73144	Sleeve
38	10-74368	Switch plate
39	58-73096	Switch
40	57A74568	Baseplate
41	1906-C	Lockwasher
42	1022-A	Nut
43	32-16901	"C" washer
44	10-73132	Tone arm hinge bracket
44A	2073-5	Screw
45	12-73007	Pin
46	33-75642	Spring
47	55A74635	Velocity trip assembly
48	55-75648	Counterbalance channel
49	26-75645	Counterbalance
50	33-72963	Ground spring
51	55A73045	Lift and sweep lever assembly
51A	9227	Clip
52	55A75639	Speed control lever
53	65-73145	Spacer
54	1637-A	Flat washer
55	1905-A	Lockwasher
56	1022-A	Nut
57		Locknut
58	55-73102	Reject trip lever
59	1201-A	Speed nut
60	33-71342	Spring
61	32-16901	"C" washer
62	32-75780	Hairpin clip
63	32-75776	Fiber washer
64	28A75782	Idler wheel
65	65-72058	Spacer
66	53-75710	Motor mounting grommet
67	1022-A	Nut
68	35-75778	Drive belt
69	56-75540	Two-speed motor
70	55A75723	Control link
71	33-75719	Spring
72	32-16901	"C" washer
73	12-73007	Pin
74	55-A74605	10" frog actuating lever assembly (including item 74A)
74A	33-74602	Spring
74B	33-75617	Button spring
75	32-16901	"C" washer
76	32-16901	"C" washer
77	21A73601	Spindle cap assembly
78	19A75358	Spindle assembly
79	65-75007	Lower bearing sleeve
80	43A72960	Eccentric assembly
81	43A75235	Cam and frog assembly
82	55-75142	Cam trip actuator
82A	33-75136	Cam trip actuator spring
83	33-73577	Spring
84	12-73568	Actuating lever pin
85	55A74813	Actuating lever assembly
86	10A75238	Positioning bracket sub-assembly
87	33-73135	Detent spring
88	1932-C	Lockwasher
89	1042-A	Nut
90	28-73084	Pinion
91	32-73301	Spindle cap rod retainer
92	1344-A	Screw

MOTOROLA MODELS 5M1, 5M1U, 5M2, 5M2U (Ch. HS-249, HS-223) (BATTERY-LINE OPERATED)

MOTOROLA MODELS 5M1, 5M1U, 5M2, 5M2U (Ch. HS-249, HS-223) (BATTERY-LINE OPERATED)



MOTOROLA MODEL 5M1

TRADE NAME	Motorola Models 5M1 (Ch. HS-249), 5M1U (Ch. HS-223), 5M2 (Ch. HS-249), 5M2U (Ch. HS-223)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types 1R5 Converter, 1U4 IF Amp., 1U5 DET-AVC-AF, 3S4 Power Output
POWER SUPPLY	110-120 Volts AC-DC or 3 Volts "A" Supply and 67.5 Volts "B" Supply
RATINGS	.15 Amp. at 117 Volts AC or 150MA at 3 Volts DC and 8MA at 67.5 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer parallel with base of dial.

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (Grid) of 1R5 (V1). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.	.1MFD	"	1620KC	"	"	A4	Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output	"	A5	Install chassis in cabinet. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Trimmer can be reached thru hole on side of cabinet.

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL 5M1

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amp.	1U4	1U4	6AR	
V3	DET-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	23B691995	E73D12		EDL5315X 20			Filter-Red
B	40	150							Filter-Blue
C	250	10							Fil. Byp. -Orange
C2	500		21K481377	GP500M	D6-501	5W5T5	GP2K-500	1FM-35	RF Coupling †
C3	.05	100	8K71213	P285-05		ZYW1S5		68P16	AVC Filter
C4	10000		21K482726	BPD-10	D6-103	ZNW4S1	811-01	36C1	Osc. Anode Dec.
C5	10000		21K482726	BPD-10	D6-103	ZNW4S1	811-01	36C1	RF Bypass
C6	47		21K77373	GP47M	D6-470	5W5Q5	GP1K-47	1FM-45	IF Coupling
C7	.05	100	8K71213	P285-05		ZYW1S5		68P16	Filament Bypass
C8	.05	200	24K691386	P285-05		ZYW1S5		68P16	Filament Bypass *
C9A	100		21K691992	GP100M	D6-101	5W5T1	GP1K-100	34C3	Diode RF Filter
B	2000			GP2000M	D6-202	ZYW4D2	GP2M-002		Audio Coupling
C	100			GP100M	D6-101	5W5T1	GP1K-100		AF Amp. Plate
D	5000			BPD-5	D6-502	ZYW4D5	811-005		Audio Coupling
C10	10000		21K482726	BPD-10	D6-103	ZNW4S1	811-01	36C1	AF Amp. Screen
C11	5000		21A470789	BPD-5	D6-502	ZYW4D5	811-005	29C1	Output Plate
C12	.05	400	8K471635	P485-05				68P10	Line Filter

† Used only in chassis HS-223.

* When C8 is replaced, wind same number of turns of wire on replacement as was on original capacitor.

CONTROLS

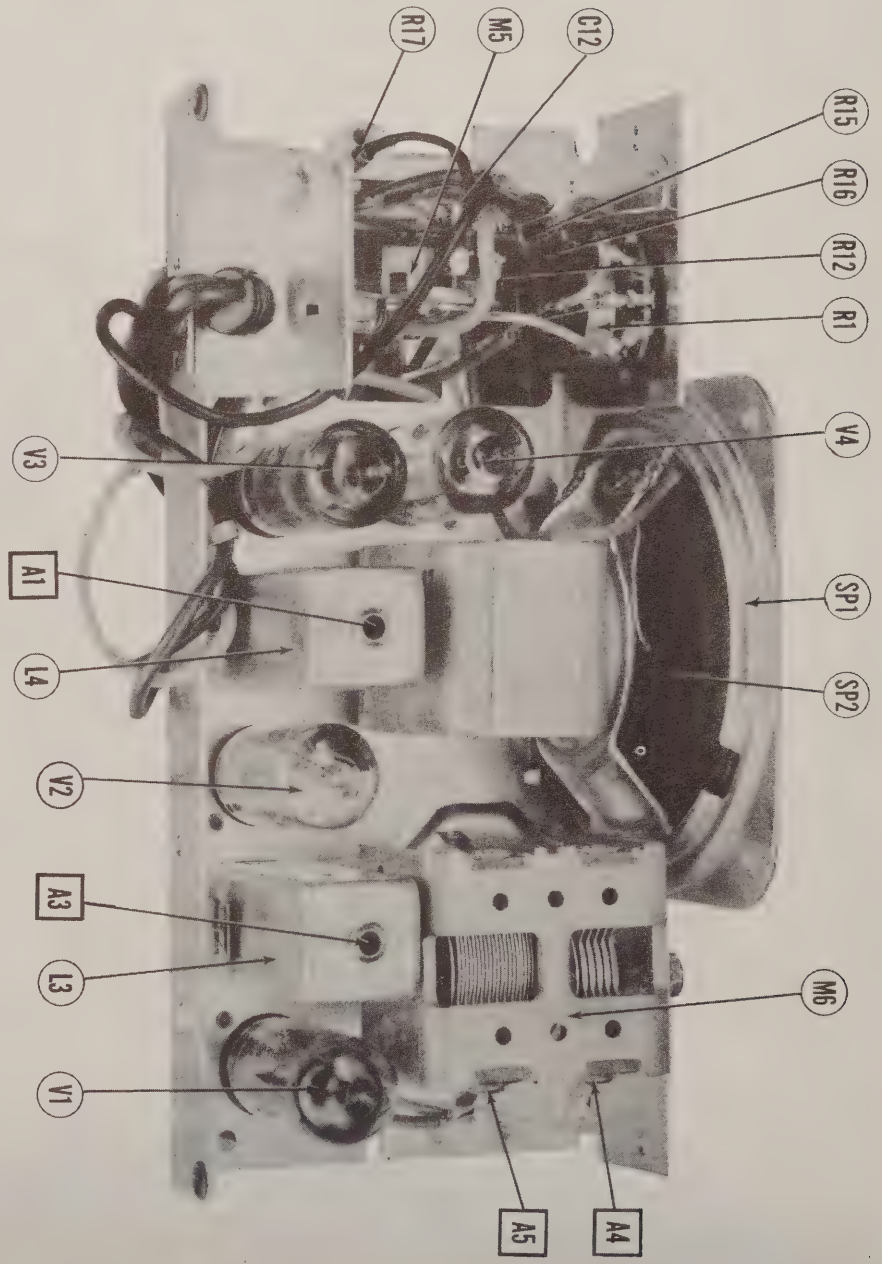
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	1 Meg.	½	18A691993				Volume control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	4.7 Meg.	½	6R2122	BTS-4.7 Meg.	AVC Network-See Note 1
R3	100KΩ	½	6R6031	BTS-100K	Osc. Grid
R4	22KΩ	½	6R6397	BTS-22K	Osc. Anode
R5	10 Meg.	½	6R2109	BTS-10 Meg.	IF Amp. Grid
R6	27Ω	½	6R5683	BW-½-27	Filament String
R7	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	AVC Network
R8	390Ω	½	6R5554	BW-½-390	Filament String
R9	10 Meg.	½	6R2109	BTS-10 Meg.	AF Amp. Grid
R10	1 Meg.	½	6R6004	BTS-1 Meg.	AF Amp. Plate
R11	4.7 Meg.	½	6R2122	BTS-4.7 Meg.	AF Amp. Screen
R12	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	Output Grid
R13	270Ω	½	6R6432	BW-½-270	Filament String
R14	680Ω	½	6R6040	BTS-680	Bias Network
R15	820Ω	½	6R6269	BTS-820	Voltage Divider
R16	220Ω	½	6R6015	BW-½-220	Bias Network
R17	3300Ω	½	6R5581	BTS-3300	Filter
R18A	2000Ω	10	17K692009		Filament Dropping Surge Limiter — Wire Wound
B	150Ω	10			

Note 1. Used in chassis HS-223 only.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	7300Ω	3.8Ω	350Ω	.5Ω	25K692006		A-2927	RO-13	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	VIKING PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1A	PM	3.8Ω	50K600141	35J4	3A07 ①	① Use universal mounting brackets provided.
B	PM	3.8Ω	50K600142	35J4	3A07 ①	
	CONE DIA.	V. C. DIA.				
SP2A	3 1/4"	9/16"				
B	3 1/4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L1A	Loop Ant.	2.8Ω		1X692159		Includes front cover (Green plastic)
B	Loop Ant.			1X600129		Includes front cover (Maroon plastic)
C	Loop Ant.	2.8Ω		24B692200		Includes panel, less hinges (Green plastic)
D	Loop Ant.			24K600132		Includes panel, less hinges (Maroon plastic)
L2	Osc. Coil	2.8Ω	13Ω	24K600097	14-1074	Yellow code
L3	1st IF	35Ω	35Ω	24B692014	16-6668	Less shield
L4	2nd IF	47Ω	47Ω	24B692015	16-6669	Less shield

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	MOTOROLA PART No.	SYLVANIA PART No.		
M1	.056A	48B791092	NB-5		

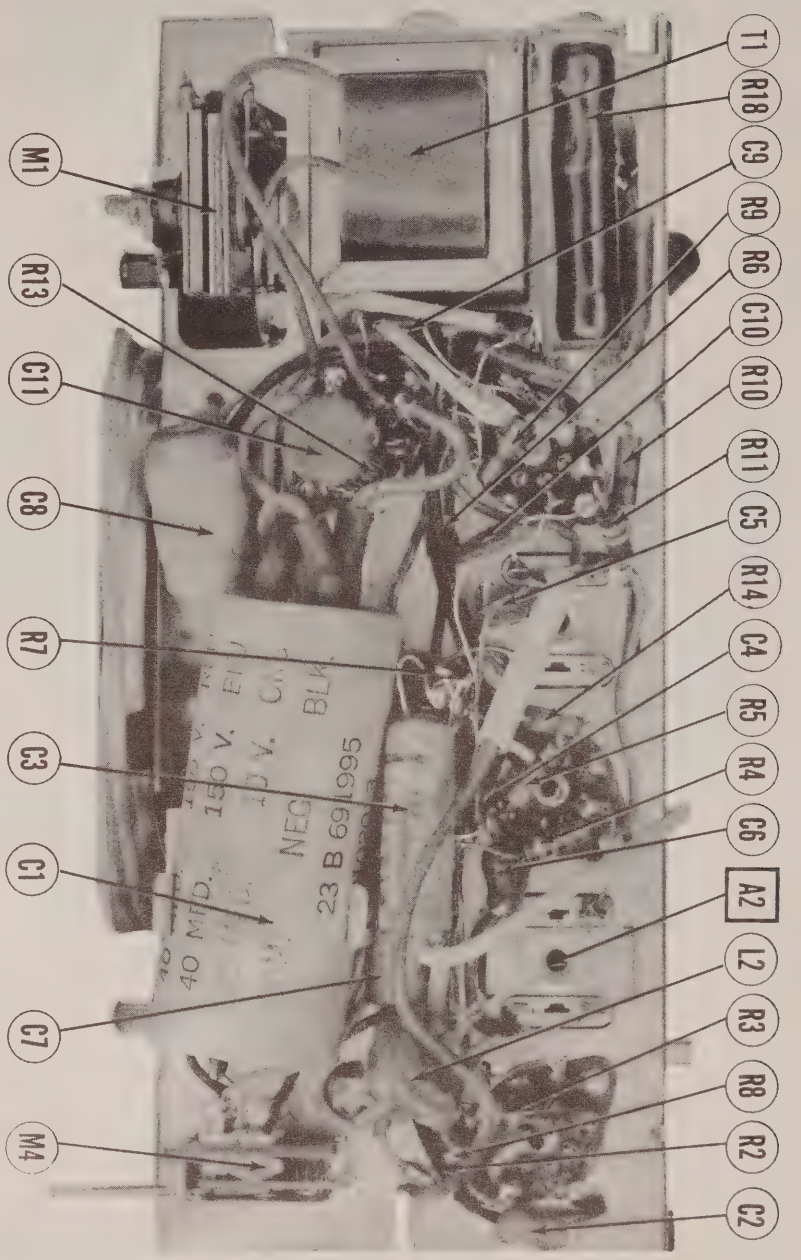
BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	3 V "A"		950			2R			2 required
M3	67.5V "B"			467			XX45		

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Switch	40A691999	On-Off
M5	Switch	40B471927	AC/DC-Battery
M6	2 Gang Var. Cap.	19K692007	(15-410MMF, 16-162MMF)
	Cabinet	1X692156	Models 5M1, 5M1U
	Cabinet	1X600126	Models 5M2, 5M2U
	Knob	36B691899	Models 5M1, 5M1U
	Knob	36K600105	Models 5M2, 5M2U

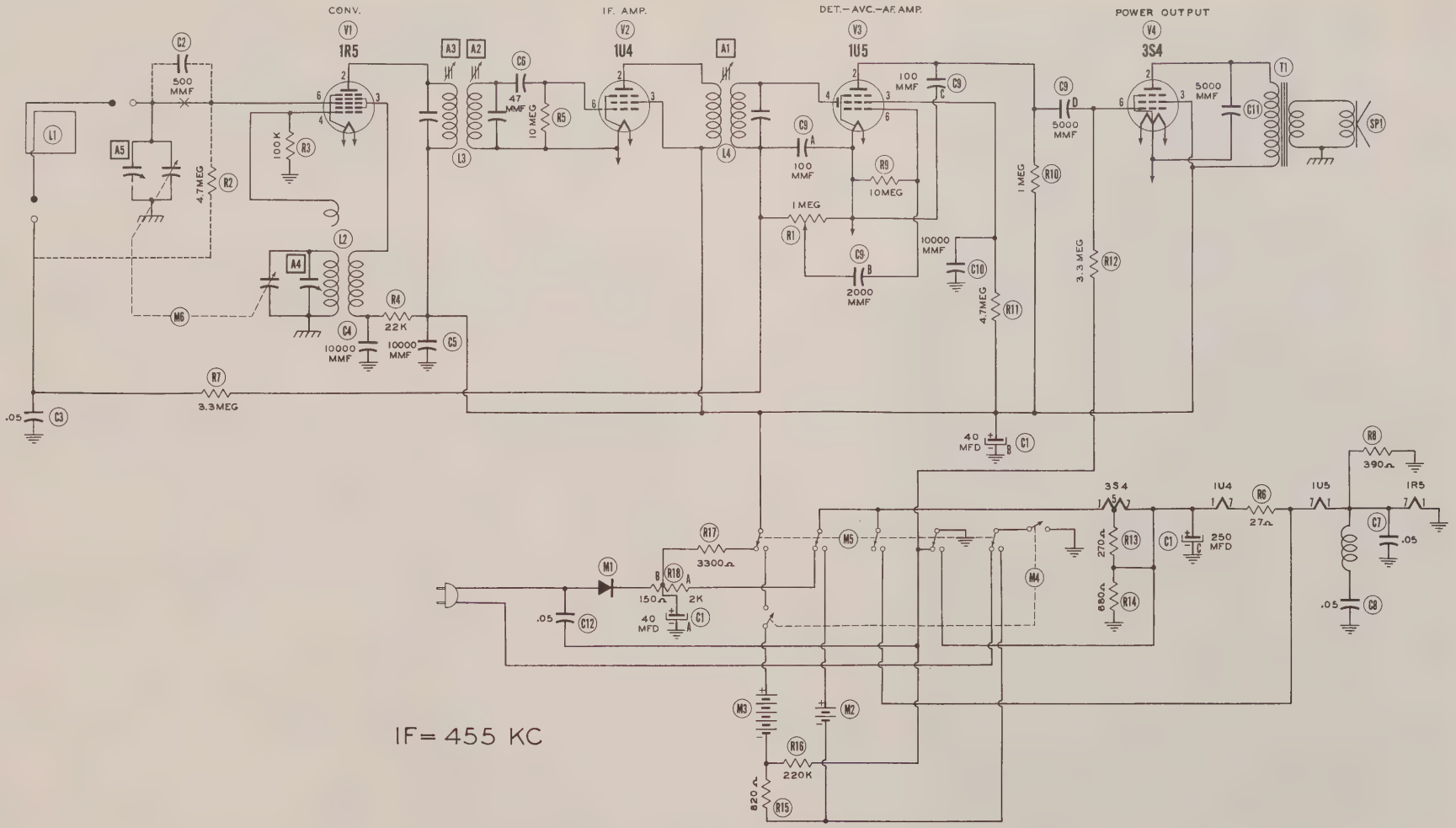
CHASSIS—BOTTOM VIEW



SET 101 FOLDER 7

MOTOROLA MODEL 5M1

MOTOROLA MODEL 5M1



ALL VOLTAGE AND RESISTANCE READINGS TAKEN IN AC/DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0V.	60VDC	37VDC	§-4.2VDC	0V.	0V.	1VDC
V 2	1U4	4.8VDC	60VDC	60VDC	0V.	4.8VDC	.1VDC	3.6VDC
V 3	1U5	1VDC	13VDC	11VDC	.2VDC	0V.	0V.	2.4VDC
V 4	3S4	4.8VDC	60VDC	0V.	60VDC	6VDC	60VDC	7.2VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†3.4KΩ	†25KΩ	100KΩ	*	9 Meg.	*
V 2	1U4	*	†3.4KΩ	†3.4KΩ	Inf.	*	10 Meg.	*
V 3	1U5	*	†1 Meg.	†4.7 Meg.	1 Meg.	Inf.	10 Meg.	*
V 4	3S4	*	†3.8KΩ	3.3 Meg.	†3.4KΩ	*	†3.8KΩ	*

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURE FROM OUTPUT OF M1.

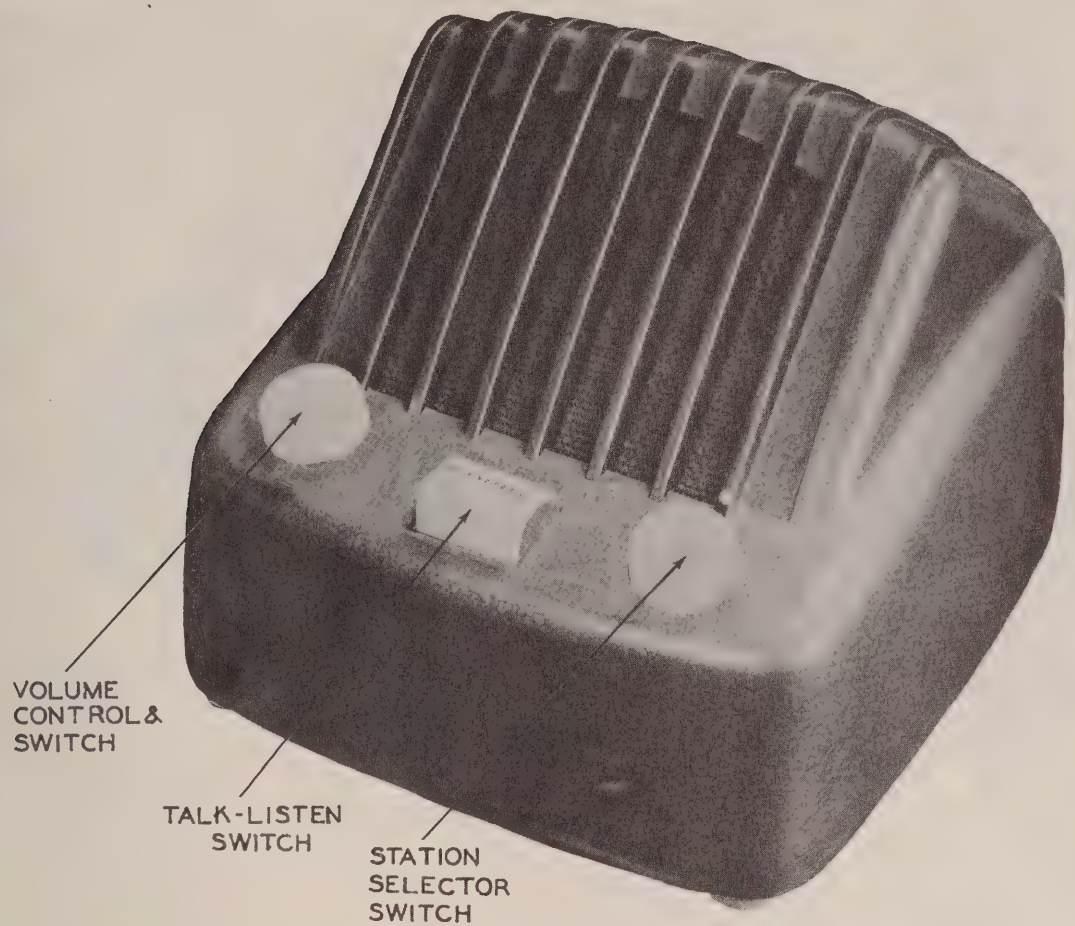
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1950

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

OPERADIO
MODEL 4A25-E



OPERADIO MODEL 4A25-E

OPERADIO
MODEL 4A25-E

TRADE NAME	Operadio, (Flexifone), Model 4A25-E
MANUFACTURER	Operadio Manufacturing Co., St. Charles, Illinois
TYPE SET	AC Operated Intercommunication System
TUBES (THREE)	Types 6SL7GT AF Amp., 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .27 Amp. at 117 Volts AC

DESCRIPTION

The Model 4A25 is a master station, designed for use in a system using up to six remote stations. Remote stations used may be the "CALL-IN" type.

The common leads from all the remote stations used are connected to pin 8 of the input plug. (see schematic page 4). The "RECEIVE" lead from each remote stations is connected to the respective pin number corresponding to station number. That is, station #1 to pin #1, station #2 to pin #2 etc. On "CALL-IN" type remote stations the call-in lead from each remote station connects to pin 7 of the input plug.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

OPERADIO
MODEL 4A25-E

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		OPERADIO PART No.	STANDARD REPLACEMENT		
V1	AF Amp.	262-6SL7	6SL7GT	8BD	
V2	Power Output	262-6V6	6V6GT	7AC	
V3	Rectifier	262-6X5	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	OPERADIO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	350	199-2905	AF642H					▲ Filter
B	20	350							■ Filter
C	10	350							▲ Filter
C2	20	25	199-2001-206	PRS25/25		BR202A		TA-25	Output Cath. Byp.
C3	.05	400	199-4021-503	P488-05	DF-503	PTE4S5		TM-15	Fixed Trimmer
C4	.1	400	199-4021-104	P488-1	DF-104	PTE4P1		TM-1	Audio Coupling
C5	250	500	199-3001-251	1468-00025	D6-251	5W5T25	GP2K-250	1FM-325	AF Amp. Grid Byp.
C6	.001	600	199-4030-102	P688-001	D6-102	PTE6D1	GP2L-001	TM-21	Audio Coupling
C7	.002	600	199-4030-202	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C8	.0005	600	199-4030-501	1468-0005	D6-501	5W5T5	GP2K-500	TR-25	Output Grid Byp.
C9	.006	600	199-4030-602	P688-006	D6-562	PTE6D6	GP2M-0056	TM-26	Line Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	OPERADIO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2.5 Meg.	½	601-13	Q13-140	AM-66-S	AN-76	Volume control and switch
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	K-155	Attach to R1A per instructions

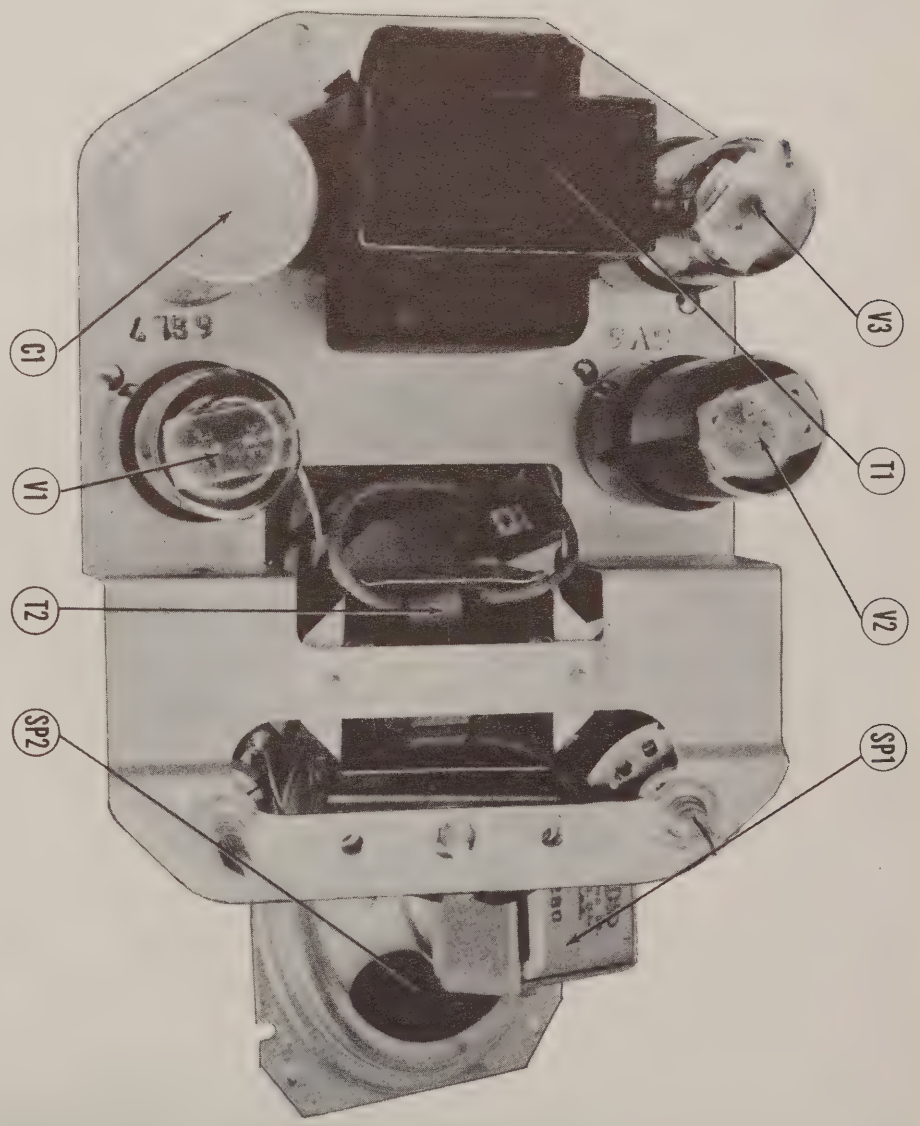
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OPERADIO PART No.	IRC PART No.	
R2	47KΩ	1	600-0116-473	BTA-47K	AF Amp. Grid
R3	560Ω	1	600-0116-561	BTA-560	AF Amp. Cathode
R4	1500Ω	1	600-0116-152	BTA-1500	AF Amp. Cathode
R5	100KΩ	1	600-0116-104	BTA-100K	AF Amp. Plate
R6	100KΩ	1	600-0116-104	BTA-100K	AF Amp. Plate
R7	1000Ω	1	600-0116-102	BTA-1000	Voice Coil Shunt
R8	10 Meg.	1	600-0116-106	BTA-10 Meg.	Feedback
R9	470KΩ	1	600-0116-474	BTA-470K	Output Grid
R10	270Ω	1	600-0116-271	BW-1-270	Output Cathode
R11	47KΩ	1	600-0116-473	BTA-47K	Filter
R12	470Ω	1	600-0116-471	BW-1-470	Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	OPERADIO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .27A	470VCT .041ADC	6.3VAC @ .6A	6.3VCT @ .75A	710-4038			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OPERADIO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6.5KΩ	75Ω	250Ω	1.3Ω	710-2001			RO-13	

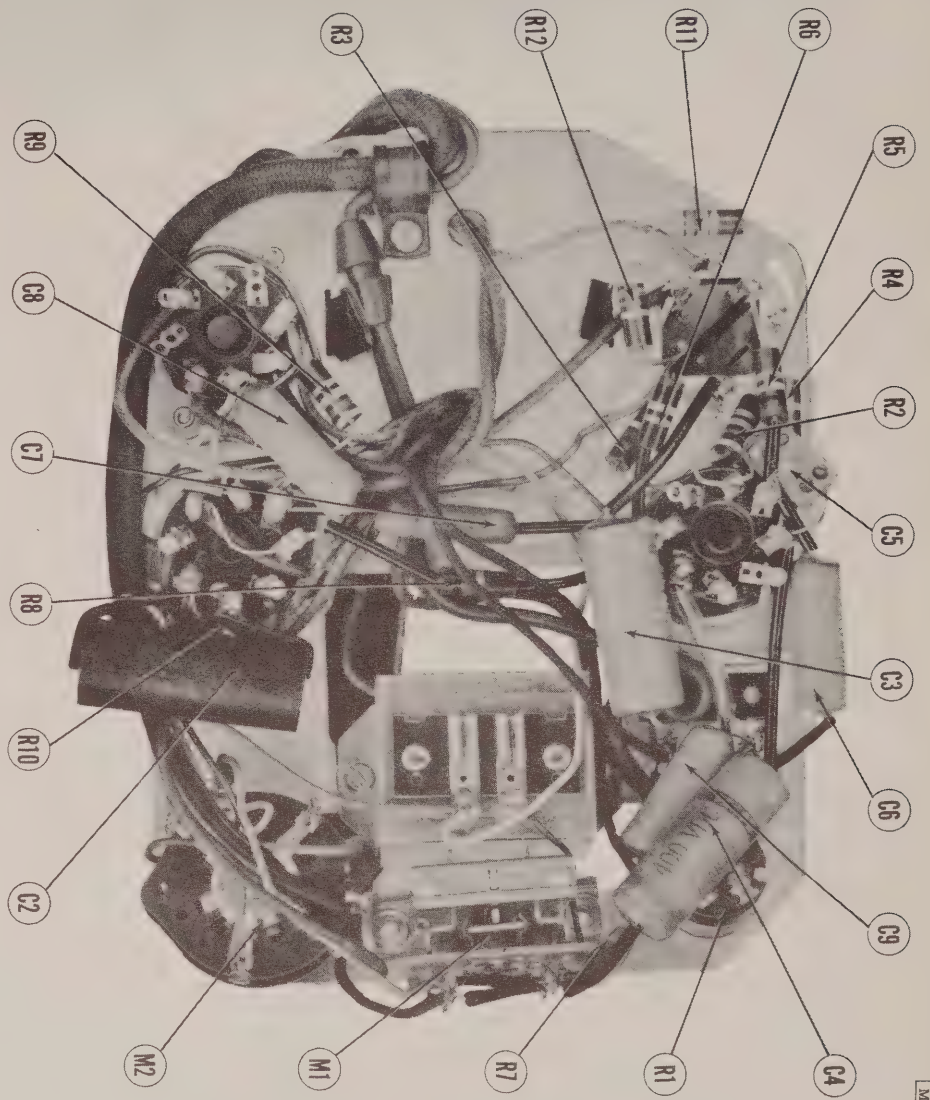
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			OPERADIO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	75Ω	S-10280P3WCK4		4A1Z75	
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

MISCELLANEOUS

ITEM No.	PART NAME	OPERADIO PART No.	NOTES
M1	Switch	680-31	Listen-Talk
M2	Switch	680-32	Station Selector

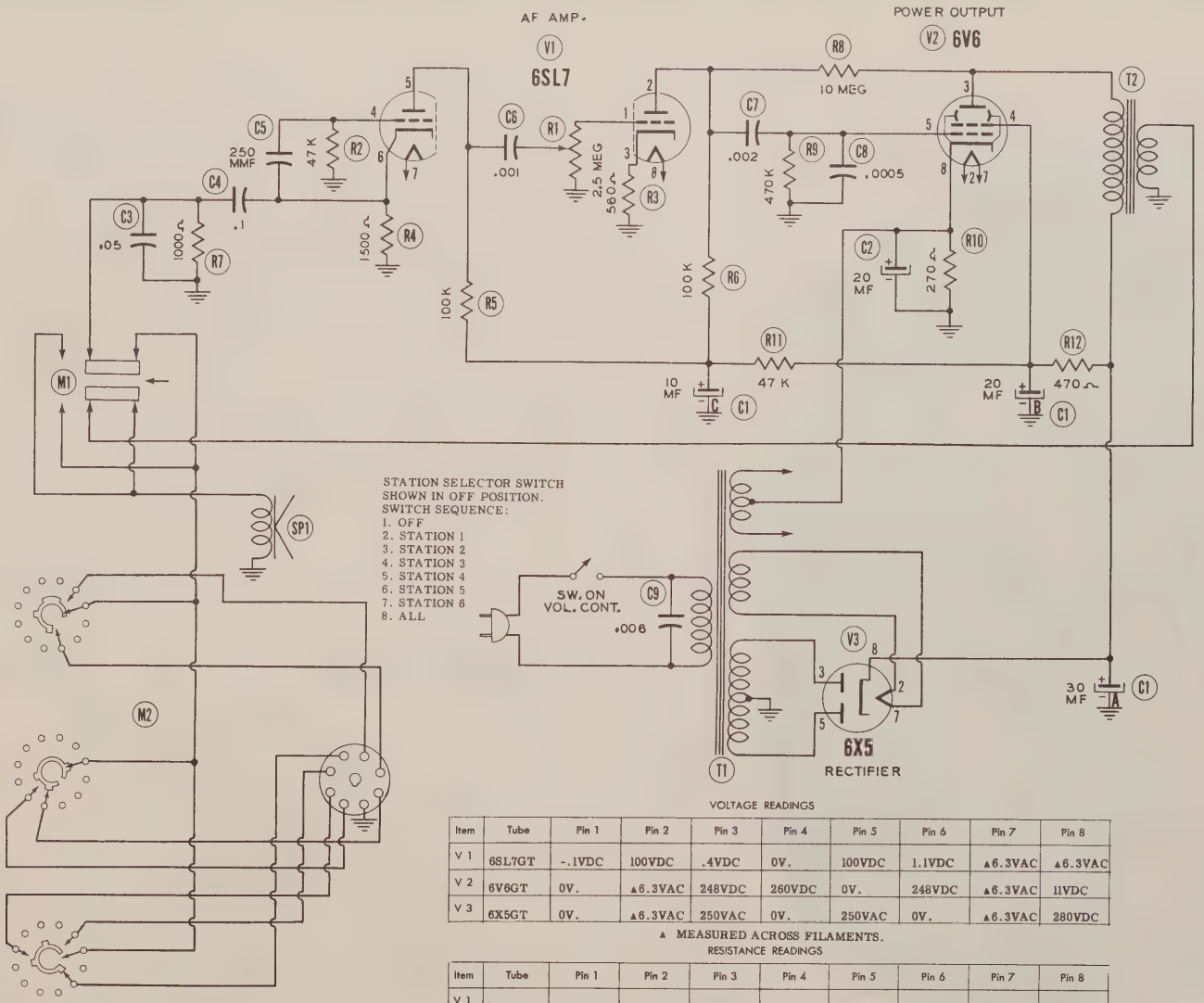
CHASSIS—BOTTOM VIEW



SET 101 FOLDER 8

OPERADIO MODEL 4A25-E

OPERADIO MODEL 4A25-E



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SL7GT	-.1VDC	100VDC	.4VDC	0V.	100VDC	1.1VDC	▲6.3VAC	▲6.3VAC
V 2	6V6GT	0V.	▲6.3VAC	248VDC	260VDC	0V.	248VDC	▲6.3VAC	11VDC
V 3	6X5GT	0V.	▲6.3VAC	250VAC	0V.	250VAC	0V.	▲6.3VAC	280VDC

▲ MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SL7GT	2.5 Meg.	†150KΩ	560Ω	47KΩ	†150KΩ	1.5KΩ	270Ω	270Ω
V 2	6V6GT	0Ω	270Ω	†720Ω	†470Ω	470KΩ	†720Ω	270Ω	270Ω
V 3	6X5GT	Inf.	Inf.	310Ω	0Ω	310Ω	Inf.	Inf.	2 Meg.

† MEASURED FROM PIN 8 OF V3.

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

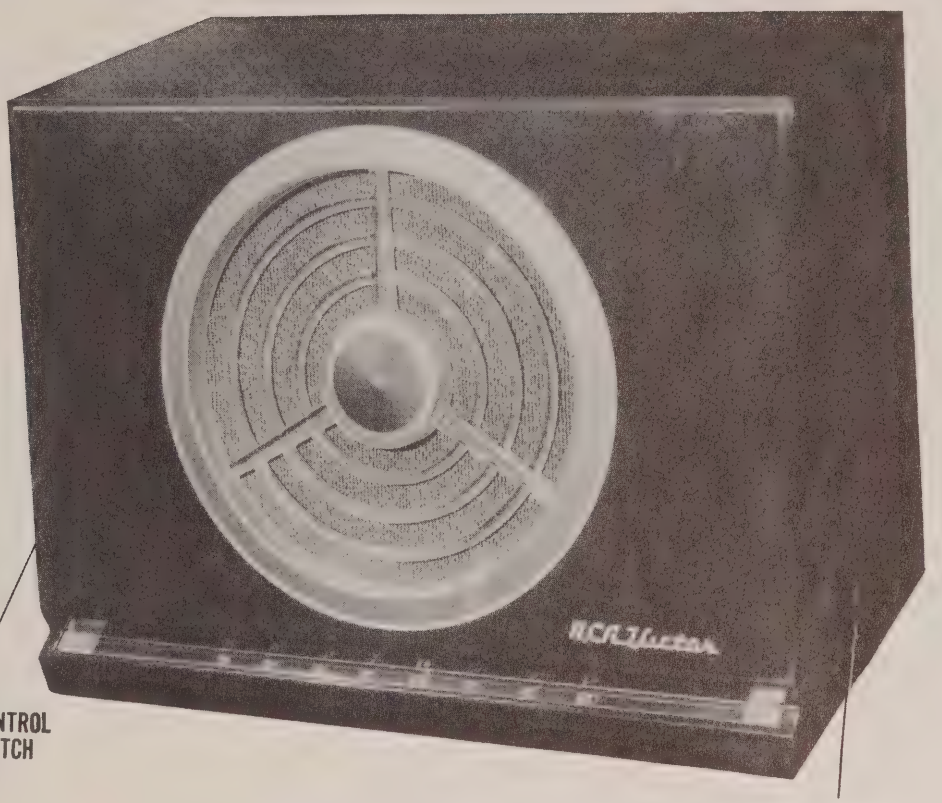
© Howard W. Sams & Co., Inc. 1950

101-8

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR MODELS 9X561 (Ch. RC-1079B), 9X562 (Ch. RC-1079C)

RCA VICTOR MODELS 9X561 (Ch. RC-1079B), 9X562 (Ch. RC-1079C)



RCA VICTOR MODELS 9X561 (Ch. RC-1079B), 9X562 (Ch. RC-1079C)

RCA VICTOR MODEL 9X561

TRADE NAME	RCA Victor, Models 9X561 (Ch. RC-1079-B), 9X562 (Ch. RC-1079-C)
MANUFACTURER	RCA Victor, Div. of Radio Corp., of America, Camden, New Jersey
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES(FIVE	Types 12SA7 Converter, 12SK7 IF Amp., 12SQ7 DET-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.27 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer to first reference mark on low frequency end of dial backplate. Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (Grid) of 12SA7 (V1). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Adjust for max. output	"	A6	"
4.		Loop	600KC	600KC	"	A7	Rock tuning gang while adjusting A7 for maximum output. Repeat steps 2, 3 and 4 until no further improvement can be made.

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

RCA VICTOR MODEL 9X561

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12SA7	12SA7	8R	
V2	IF Amp.	12SK7	12SK7	8N	
V3	DET-AVC-AF	12SQ7	12SQ7	8Q	
V4	Power Output	50L6GT	50L6GT	7AC	
V5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	74662	PRSA150/40-80		EDL8415		TA-440	Filter-Red
B	50	150						UT-501	Filter-Yellow
C2	56		71924	GP56M	D6-560	5W5Q5	GP1K-56	1FM-45	Osc. Grid Cap.
C3	.05	400	73553	P488-05		PTE4S5		TM-15	AVC Filter
C4	.1	400	70617	P488-1		PTE4P1		TM-1	Phono Isolation
C5	.001	400	73186	P688-001	D6-102	PTE6D1	GP2L-001	TM-21	Audio Coupling
C6	.02	200	71928	P488-02		PTE4S2		TM-12	Audio Coupling
C7	.01	200	71923	P488-01	D6-103	PTE4S1	811-01	TM-11	Tone Compensation
C8	470		74661	GP470M	D6-471	5W5T5	GP2K-470	1FM-35	AF Amp. Plate
C9	.002	400	71927	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C10	.01	400	72827	P488-01	D6-103	PTE4S1	811-01	TM-11	Output Plate
C11	.05	400	73553	P488-05		PTE4S5		TM-15	Rect. Plate Byp.
C12	.1	400	70617	P488-1		PTE4P1		72P52	Line Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2 Meg.	½	74133	Q13-139X	AT-115	BT-79-S	Volume control and switch tapped at 500KΩ
B	Shaft			Not Req.	FS-3	Not Req.	Attach to R1A per instructions
C	Switch			76-1	SW-A	Not Req.	Attach to R1A per instructions

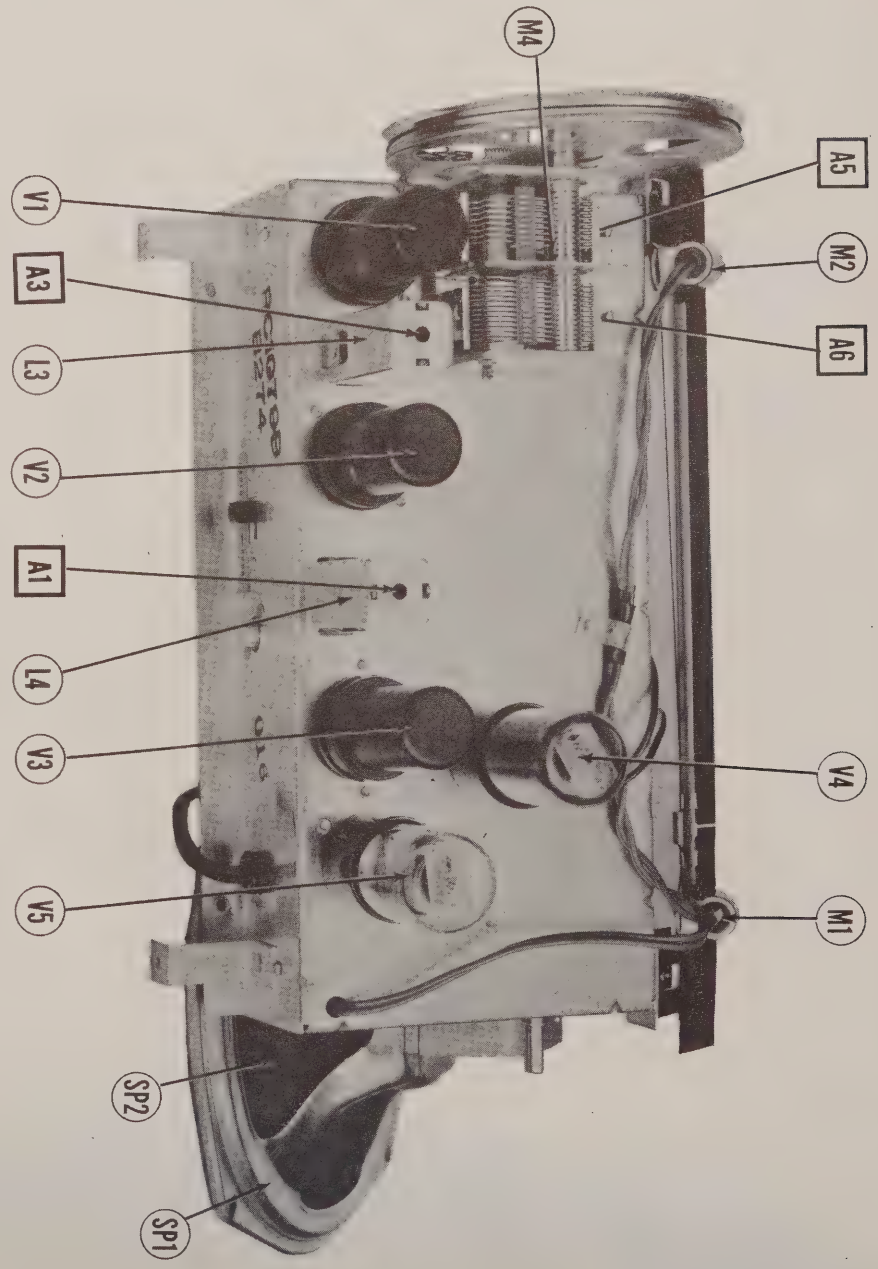
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½		BTS-22K	Osc. Grid
R3	82Ω	½		BW-½-82	IF Amp. Cathode
R4	3.3 Meg.	½		BTS-3.3 Meg.	AVC Network
R5	330KΩ	½		BTS-330K	Det. Diode Load
R6	56KΩ	½		BTS-56K	Diode Filter
R7	33KΩ	½		BTS-33K	Tone Compensation
R8	10 Meg.	½		BTS-10 Meg.	AF Amp. Grid
R9	220KΩ	½		BTS-220K	AF Amp. Plate
R10	470KΩ	½		BTS-470K	Output Grid
R11	150Ω	½		BW-½-150	Output Cathode
R12	1000Ω	1		BTA-1000	Filter
R13	15Ω	½	74660		Surge Limiter-Wire Wound
R14	220KΩ	½		BTS-220K	Isolation

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	3000Ω	4.1Ω	325Ω	.6Ω	74654	A-3876 ①	A-3018 ①	RO-6 ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA RCA PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-117		
SP1	PM	4.1Ω	74664	MOD. P8-T	8A21	
	CONE DIA.	V. C. DIA.				
SP2	7 3/8"	3/4"				

R F COILS

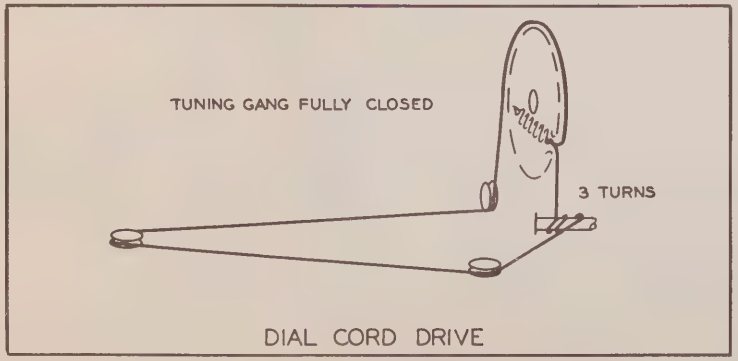
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.	
L1A	Loop Ant.	1Ω		74655		With maroon cabinet back.
B	Loop Ant.			74656		With ivory cabinet back.
L2	Osc. Coil	1Ω	5.2Ω	74448	14-1073	
L3	1st IF	11Ω	12Ω	73036	16-6758	
L4	2nd IF	15Ω	15Ω	73037	16-6758	

DIAL LIGHTS

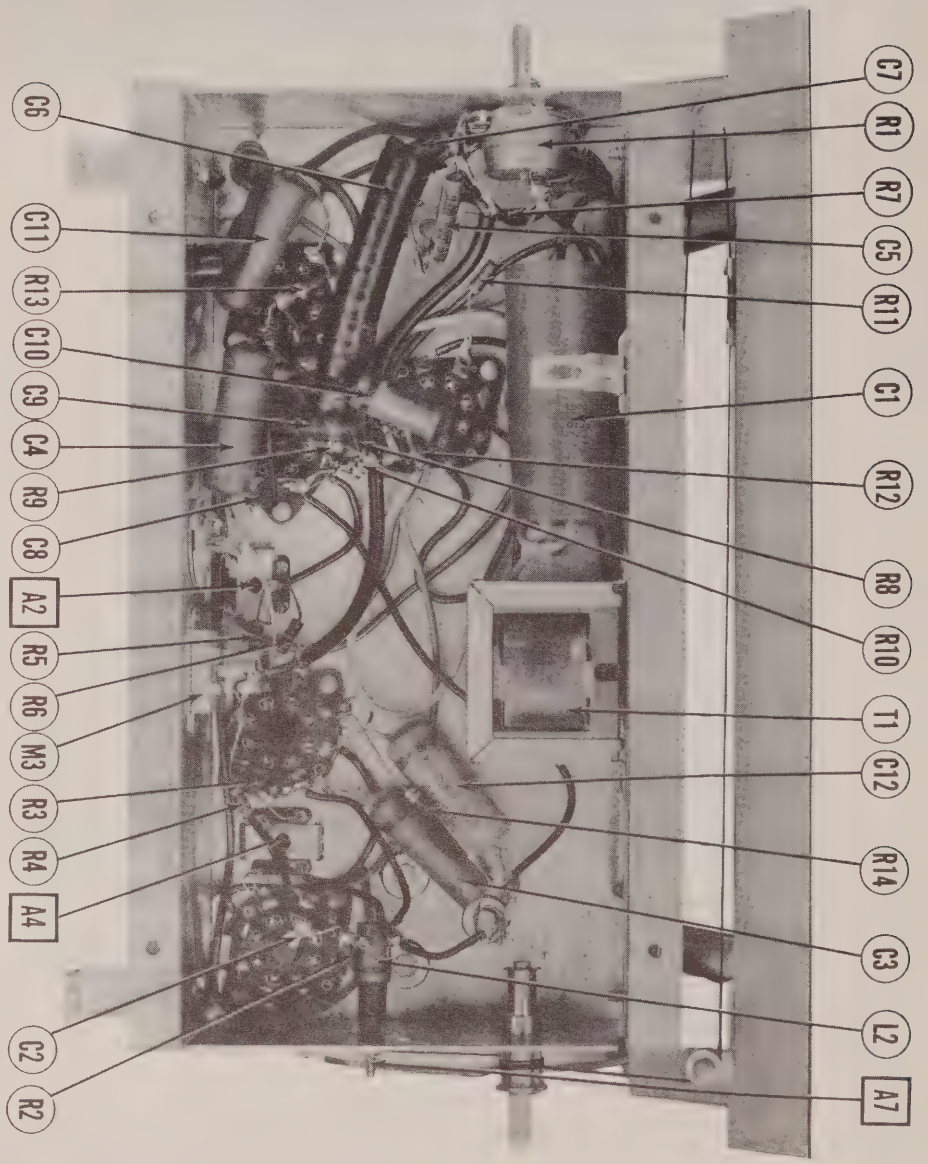
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA	NOTES
M1	Bayonet	3.2	.16		71116		Type #1490
M2	Bayonet	3.2	.16		71116		Type #1490

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M3	Switch	33634	Radio-Phono
M4	2 Gang Var. Cap.	74653	(27-416MMF, 18-157MMF)
	Cabinet	Y2131	Model 9X561
	Cabinet	Y2132	Model 9X562
	Dial Scale	74668	
	Knob	74666	Model 9X561
	Knob	74667	Model 9X562
	Dial Pointer	74658	Model 9X561
	Dial Pointer	74657	Model 9X562

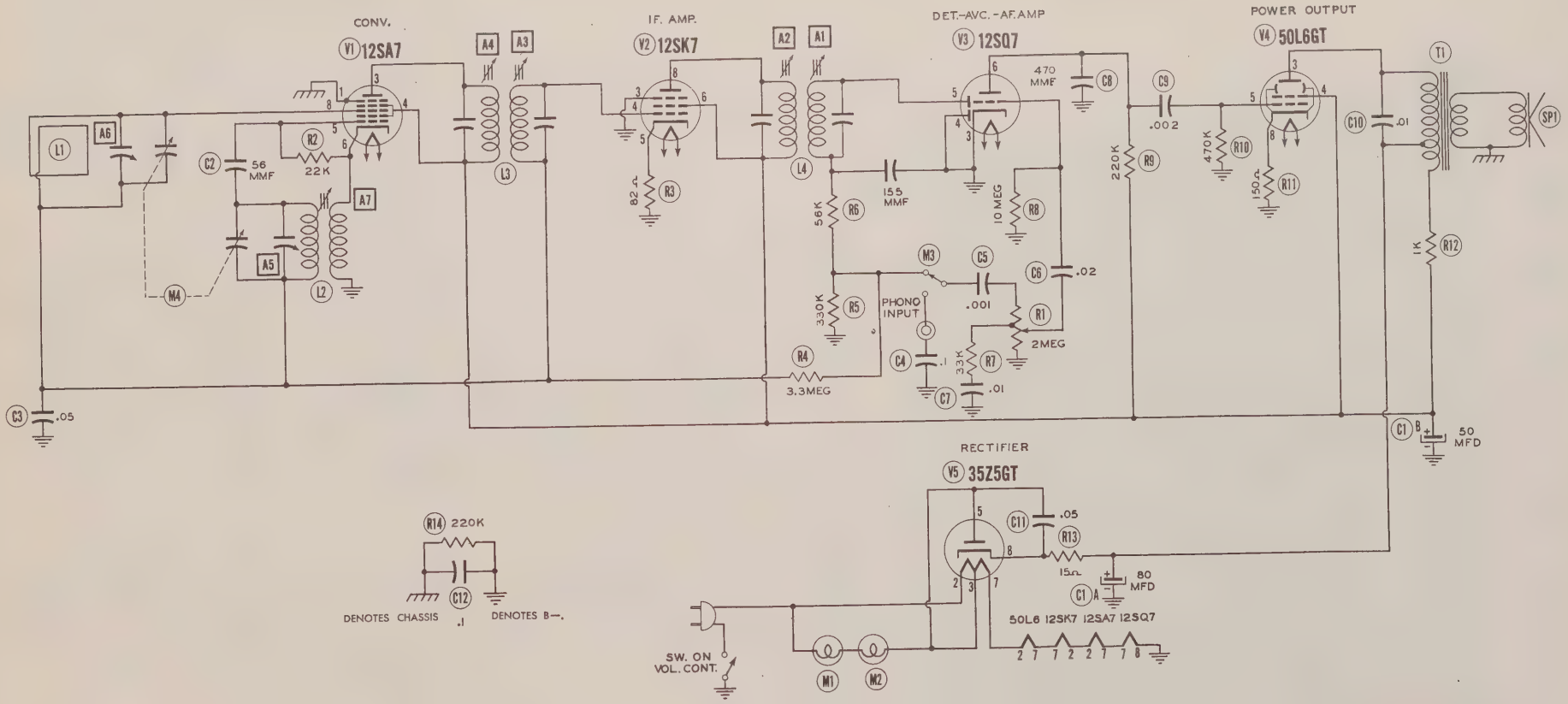


CHASSIS—BOTTOM VIEW



RCA VICTOR MODEL 9X561

RCA VICTOR MODEL 9X561



IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	0V.	25VAC	90VDC	90VDC	§-11.6VDC	0V.	12VAC	-.3VDC
V 2	12SK7	0V.	25VAC	0V.	-.3VDC	1.2VDC	90VDC	38VAC	90VDC
V 3	12SQ7	0V.	-.6VDC	0V.	0V.	-.5VDC	12VAC	0V.	0V.
V 4	50L6GT	0V.	85VAC	105VDC	90VDC	0V.	115VDC	38VAC	6VDC
V 5	35Z5GT	0V.	117VAC	112VAC	120VDC	112VAC	0V.	85VAC	120VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	220KΩ	26Ω	†1000Ω	†1000Ω	22KΩ	1Ω	13Ω	3.6 Meg.
V 2	12SK7	220KΩ	26Ω	0Ω	3.6 Meg.	82Ω	†1000Ω	40Ω	†1000Ω
V 3	12SQ7	220KΩ	10 Meg.	0Ω	0Ω	385KΩ	†220KΩ	13Ω	0Ω
V 4	50L6GT	Inf.	90Ω	†340Ω	†1000Ω	470KΩ	†32Ω	40Ω	150Ω
V 5	35Z5GT	Inf.	120Ω	115Ω	†15Ω	115Ω	Inf.	90Ω	3 Meg.

† MEASURED FROM PIN 8 OF V5.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE
MODELS 1, 2 (Ch. 132.878)

SILVERTONE
MODELS 1, 2 (Ch. 132.878)

SILVERTONE MODEL 1

TRADE NAME	Silvertone Models 1, 2 (Ch. 132.878)
SUPPLIER	Sears, Roebuck and Co., 925 S. Homan St., Chicago, Illinois
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types 12SA7 Converter, 12SQ7GT DET-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING .25 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 8 (Grid) of 12SA7 (V1). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	Direct	High side to antenna lug of antenna coil. (Remove antenna hank). Low side to B-.	1400KC	Tune for max. output	"	A3	Rock tuning gang while adjusting A3 for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 1

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
V1	Converter	12SA7	12SA7	8AD	
V2	DET-AVC-AF	12SQ7GT	12SQ7GT	8Q	
V3	Power Output	50L6GT	50L6GT	7AC	
V4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150	N22876	PRSA86D4A		EDL4215C		TA-305	Filter-Red
B	20	150							Filter-Blue
C	20	25							Fil. Byp. -Green
C2	.05	200		P288-05		PTE4S5		TM-15	AVC Filter
C3	.05	400		P488-05		PTE4S5		72P51	Line Isolation
C4	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C5	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C6	100	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	AF Amp. Plate
C7	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C8	.01	400		P488-01	D6-103	PTE4S1	811-01	TM-11	Output Plate Byp.
C9	.05	400		P488-05		PTE4S5		TM-15	Line Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2 Meg.	½	N21630	Q11-139	AM-83-S	AN-75	Volume control
B	Shaft			Not Req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch			76-1	SW-A	K-155	Attach to R1A per instructions

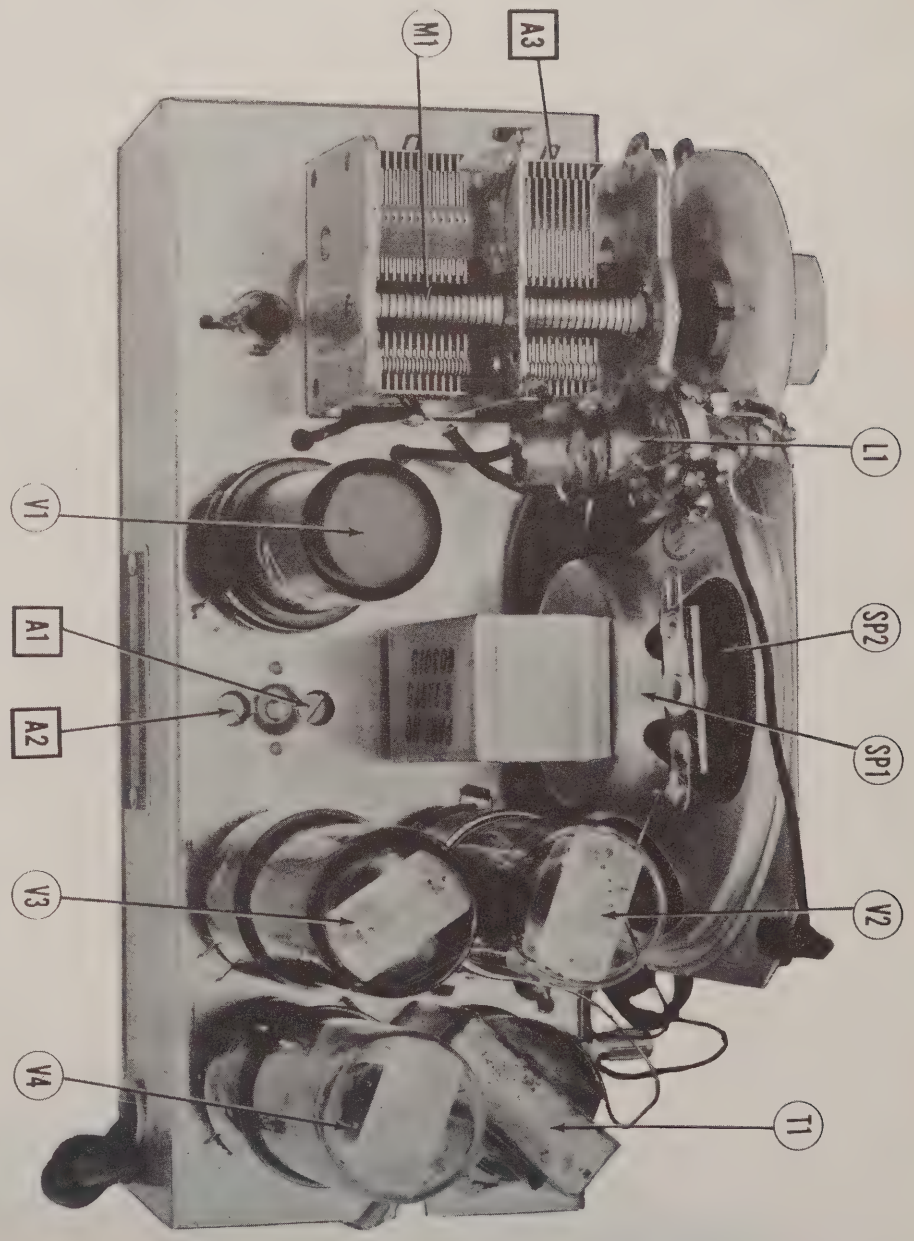
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
R2	22KΩ	½		BTS-22K	Osc. Grid
R3	4.7 Meg.	½		BTS-4.7 Meg.	AVC Network
R4	15 Meg.	½		BTS-15 Meg.	AF Grid
R5	470KΩ	½		BTS-470K	AF Plate
R6	1 Meg.	½		BTS-1 Meg.	Output Grid
R7	120Ω	½		BW-½-120	Output Cathode
R8	2200Ω	½		BTS-2200	Filter
R9	15Ω	1			Surge Limiter
R10	47Ω	1	N19177	BW-1-47	Filament Dropping-Wire Wound
R11	330KΩ	½		BTS-330K	Line Isolation

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	1900Ω	3.5Ω	160Ω	.4Ω	N22878	A-3332 ①	A-2928 ①	RO-2 ①	① Bend mounting tabs down and mount in original slots.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-113		
SP1	PM	3.5Ω	N22875	MOD. P4-X	4A07	
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

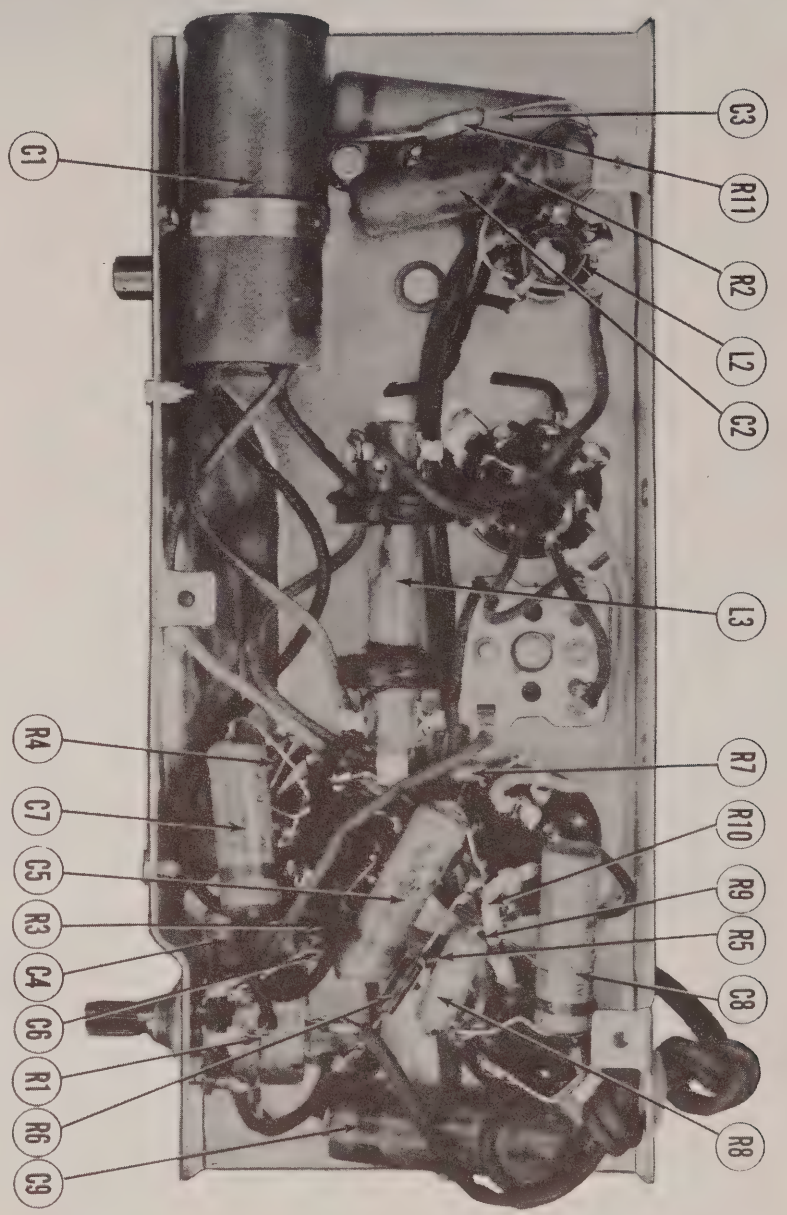
R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	MEISSNER PART No.	
L1	Ant. Coil	3Ω	36Ω	N22864	14-1071	
L2	Osc. Coil	.7Ω	7Ω	N22865	14-1073	
L3	IF Coil	18Ω	18Ω	N22863	16-6678	

MISCELLANEOUS

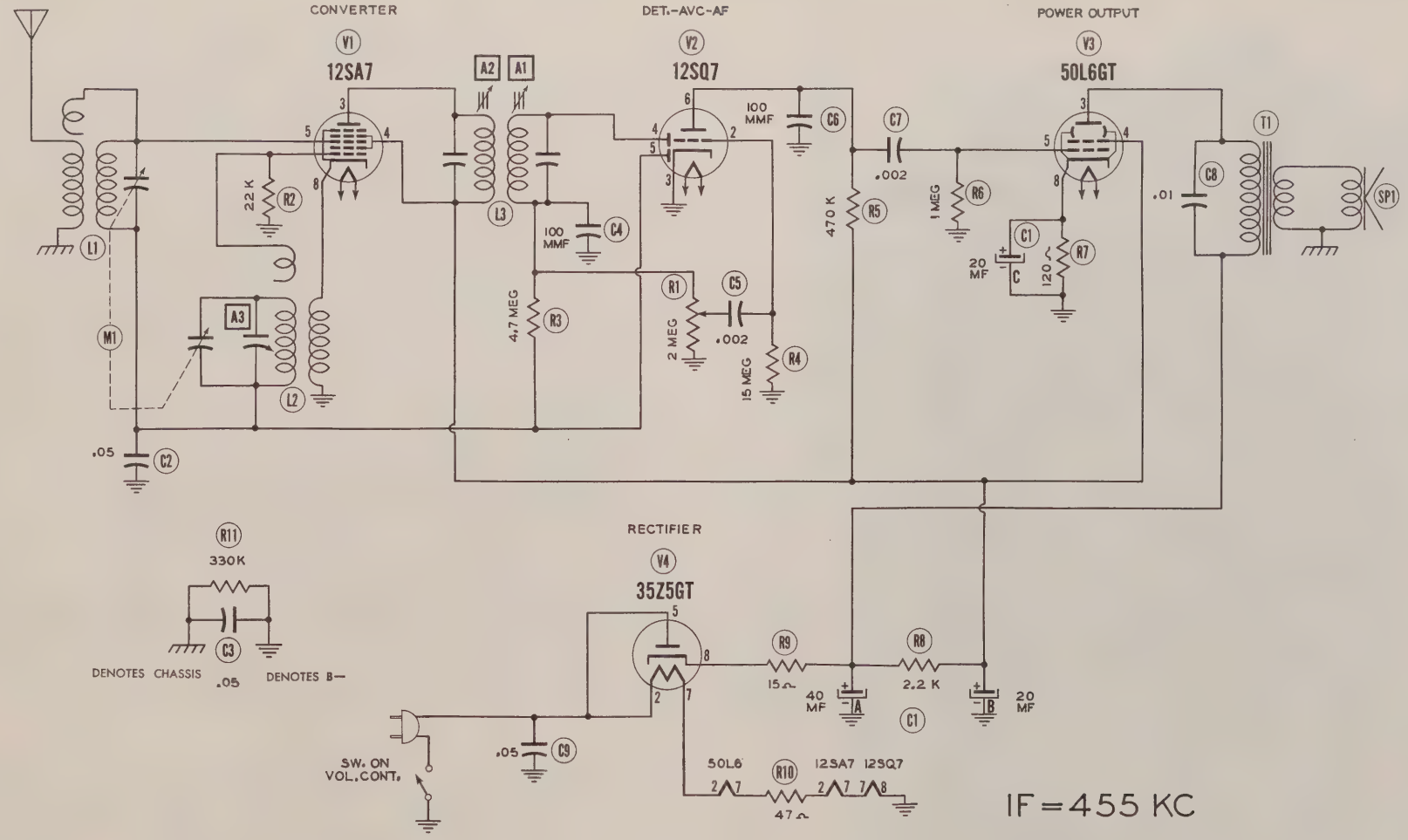
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	2 Gang Var. Cap.	N22919	(10-386MMF, 22-202MMF)
	Cabinet	N22934-1	Brown (Model 1)
	Cabinet	N22934-2	Ivory (Model 2)
A1	Dual Trimmer	N21042	IF Adj. Sec.
A2			IF Adj. Pr.
	Knob	N22974-1	Volume, Ivory
	Knob	N22975-1	Tuning, Ivory
	Knob	N22974-2	Volume, Maroon
	Knob	N22975-2	Tuning, Maroon

CHASSIS—BOTTOM VIEW



SILVERTONE MODEL 1

SILVERTONE MODEL 1



IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	0V.	24VAC	90VDC	90VDC	§-7.5VDC	0V.	13VAC	-.4VDC
V 2	12SQ7GT	0V.	-.6VDC	0V.	-.3VDC	-.3VDC	55VDC	13VAC	0V.
V 3	50L6GT	0V.	77VAC	125VDC	90VDC	0V.	0V.	24VAC	5.2VDC
V 4	35Z5GT	0V.	117VAC	110VAC	0V.	117VAC	130VDC	85VAC	130VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	330KΩ	27Ω	†2.2KΩ	†2.2KΩ	22KΩ	.7Ω	13Ω	6.7 Meg.
V 2	12SQ7GT	330KΩ	15 Meg.	0Ω	2 Meg.	6.7 Meg.	†470KΩ	13Ω	0Ω
V 3	50L6GT	Inf.	80Ω	†175Ω	†2.2KΩ	1 Meg.	Inf.	27Ω	120Ω
V 4	35Z5GT	Inf.	160Ω	150Ω	Inf.	160Ω	†15Ω	127Ω	55KΩ

† MEASURED FROM PIN 8 OF V4.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

101-10

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE
MODELS 41, 41A, 9082 (Ch. 135.245)

SILVERTONE
MODELS 41, 41A, 9082 (Ch. 135.245)

SILVERTONE MODEL 9082

TRADE NAME	Silvertone Models 41, 41A, 9082 (Ch. 135.245)
SUPPLIER	Sears, Roebuck and Co., 925 S. Homan St., Chicago, Illinois
TYPE SET	AC Operated Radio-Phonograph Combination Superheterodyne Receiver
TUBES (FIVE)	Types 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT DET-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .270 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (Grid) of 12SA7 (V1). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output.	"	A5	"

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

SILVERTONE
MODEL 9082

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12SA7GT	12SA7GT	8AD	
V2	IF Amp.	12SK7GT	12SK7GT	8N	
V3	DET.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
V4	Power Output	50L6GT	50L6GT	7AC	
V5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	F-5051	PRSA150/40-40		EDL4415		TA-440	Filter-Blue
B	40	150							Filter-Red
C2	100	500	F-6015	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Ant. Isolation
C3	.05	200	F-1345	P288-05		PTE4S5		TM-15	AVC Filter
C4	.05	200	F-1345	P288-05		PTE4S5		72P51	Line Isolation
C5	100		F-7549	CN100KN750	DN-100		N750L-100		Fixed Trimmer
C6	100	500	F-6015	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C7	.1	600	F-4957	P688-1		PTE6P1		TM-1	Phono Isolation
C8	.005	400	F-4894	P688-005	D6-502	PTE6D5	811-005	TM-25	Audio Coupling
C9	.05	200	F-1345	P288-05		PTE4S5		TM-15	AF Amp. Plate Decoup.
C10A	250		*	GP250M	D6-251	5W5T25	GP2K-250	1FM-325	AF Amp. Plate Byp.
B	10000			P488-01	D6-103	PTE4S1	811-01	TM-11	Audio Coupling
C11	.1	600	F-1623	P688-1		PTE6P1		TM-1	Tone Compensation
C12	.02	400	F-1376	P488-02		PTE4S2		TM-12	Output Plate Byp.
C13	.05	400	F-1346	P488-05		PTE4S5		TM-15	Rect. Plate Byp.

* Items C10A, C10B, R7A and R7B are combined into one unit obtainable under MFGR'S Part No. F-6477.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.		INSTALLATION NOTES
R1A	500KΩ	½	F-5757	Q13-133.	AM-60-Z	BSK-60-S	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R1A per instructions
R2A	25KΩ	½	F-6157			AN-27	Tone control
B	Shaft		Not Req.			AK-4	Attach to R2A per instructions

RESISTORS

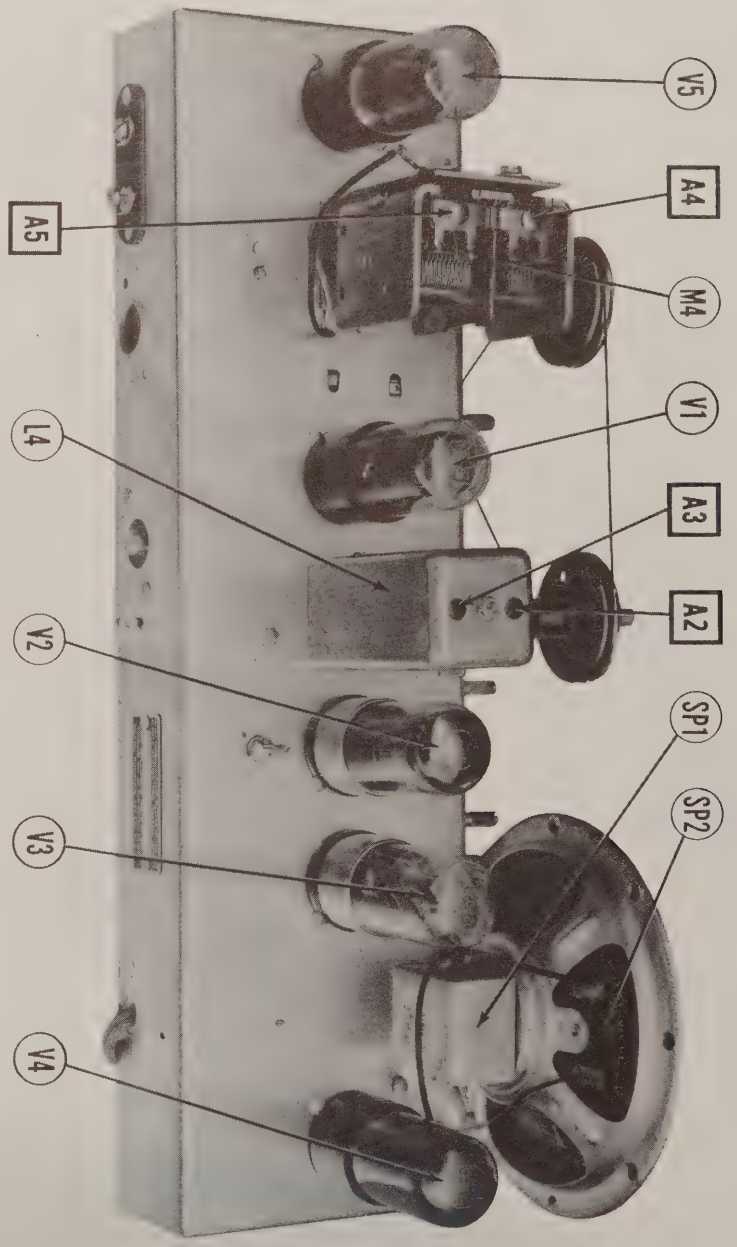
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R3	22KΩ	½	F-4025	BTS-22K	Osc. Grid
R4	1 Meg.	½	F-1262	BTS-1 Meg.	AVC Network
R5	47KΩ	½	F-4063	BTS-47K	Diode Filter
R6	6.8 Meg.	½	F-4028	BTS-6.8 Meg.	AF Amp. Grid
R7A	220KΩ	½	*	BTS-220K	AF Amp. Plate
B	470KΩ	½	*	BTS-470K	Output Grid
R8	33KΩ	½	F-4064	BTS-33K	AF Amp. Plate Decoupling
R9	180Ω	½	F-4067	BW-½-180	Output Cathode
R10	1000Ω	1	F-5358	BW-1-1000	Filter
R11	220KΩ	½	F-4026	BTS-220K	Isolation
R12	1 Meg.	½	F-1262	BTS-1 Meg.	Tone Compensation
R13	33Ω	½	F-4022		Surge Limiter

* Items C10A, C10B, R7A, and R7B are combined into one unit obtainable under MFGR'S Part No. F-6477.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2600Ω	3.5Ω	156Ω Tap @ 6Ω	.6Ω	F-4875	A-3330	A-3031	RO-3	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-105		
SP1	PM	3.5Ω	F-6148	MOD. P5-X	5A07	
	CONE DIA.	V. C. DIA.				
SP2	4 5/8"	9/16"				

R F COILS

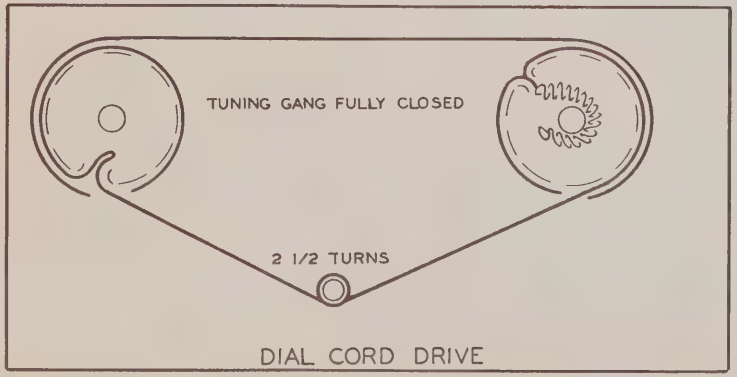
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA MEISSNER PART No.
L1	Loop Ant.	1Ω			
L2	Ant. Coil	5Ω	2.7Ω	F-6149	14-1071
L3	Osc. Coil	.6Ω	7.5Ω	F-7139	14-1073
L4	1st IF	18Ω	18Ω	F-7676	16-5712
L5	2nd IF	18Ω	18Ω	F-7677	

PHONO CARTRIDGE and NEEDLE

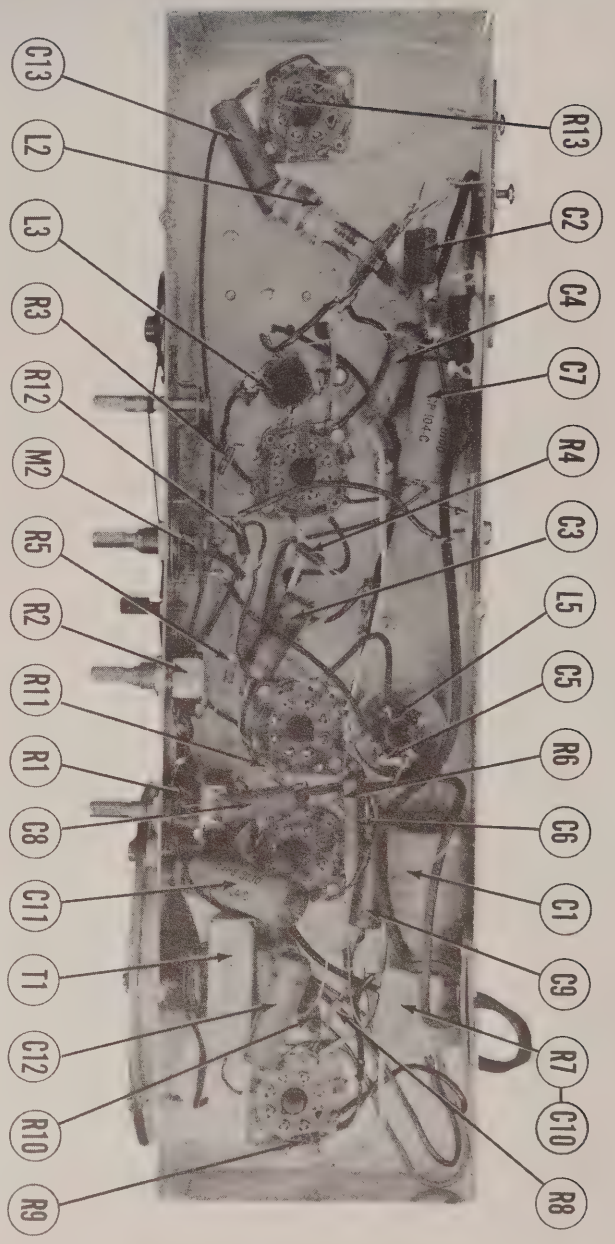
ITEM No.	REPLACEMENT DATA SILVERTONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	REMARKS
M1A	F-7622	L-70-A		W58A		
B	F-7707		Optional		Std.	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M2	Switch	F-6156	Radio-Phono
M3	Switch		Phono Motor
M4	2 Gang Var. Cap.	F-7679	(30-440MMF, 19-185MMF)
	Cabinet	F-298	Model 9082
	Cabinet	F-307	Model 41
	Cabinet	F-307A	Model 41A
	Knob	F-6738	Volume
	Knob	F-6740	Tone
	Knob	F-6742	Radio-Phono
	Knob	F-6744	Tuning



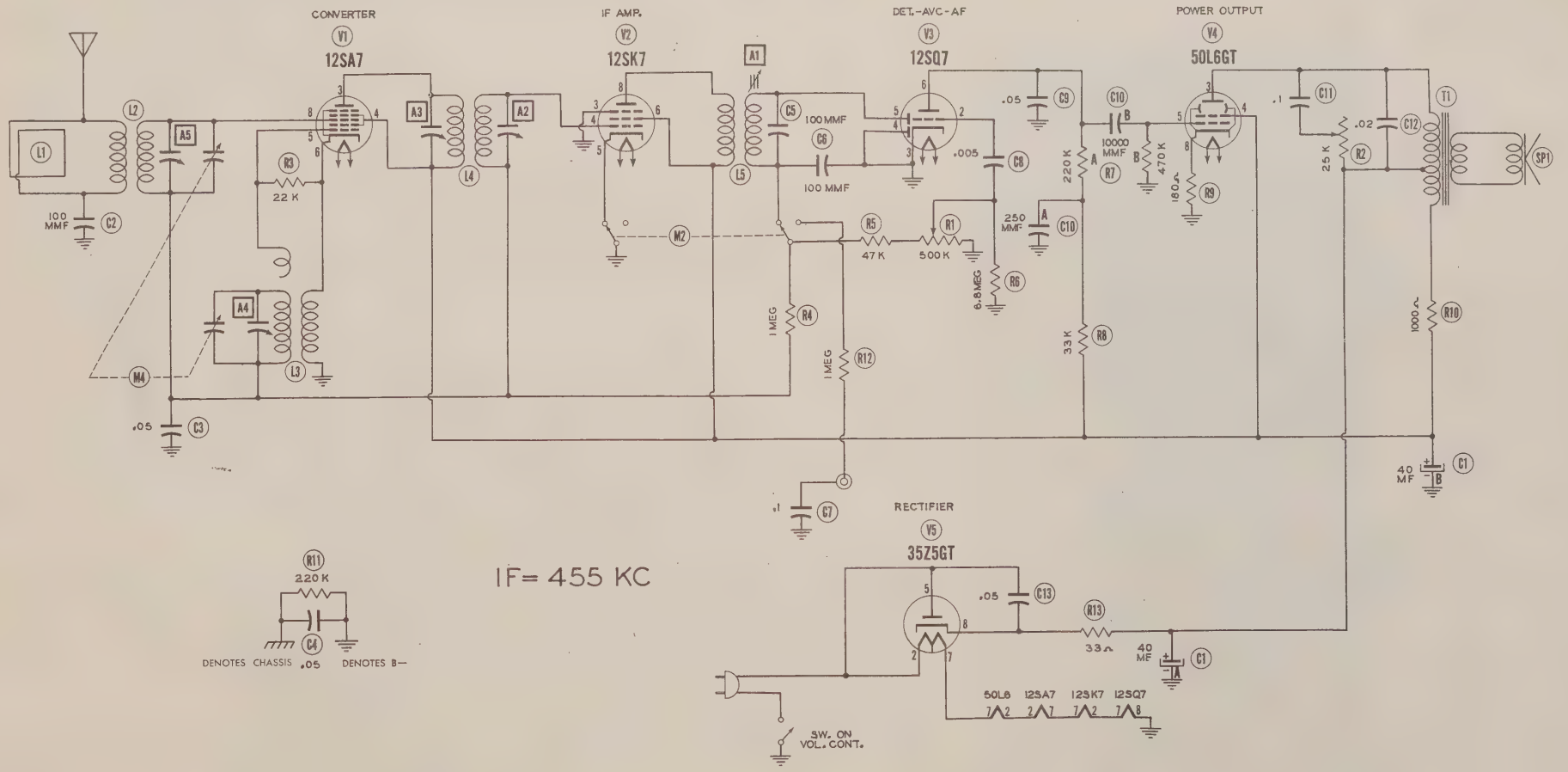
CHASSIS—BOTTOM VIEW



SET 101 FOLDER 11

SILVERTONE MODEL 9082

SILVERTONE MODEL 9082



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7GT	0V.	35VAC	95VDC	95VDC	§-11.5VDC	0V.	23VAC	-.2VDC
V 2	12SK7GT	0V.	11VAC	0V.	-.2VDC	0V.	95VDC	23VAC	95VDC
V 3	12SQ7GT	0V.	-.8VDC	0V.	0V.	-.3VDC	46VDC	11VAC	0V.
V 4	50L6GT	0V.	35VAC	120VDC	95VDC	0V.	0V.	82VAC	6.5VDC
V 5	35Z5GT	0V.	117VAC	108VAC	125VDC	117VAC	0V.	82VAC	130VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7GT	220KΩ	40Ω	†1000Ω	†1000Ω	22KΩ	.7Ω	27Ω	1.5 Meg.
V 2	12SK7GT	220KΩ	13Ω	0Ω	1.5 Meg.	0Ω	†1000Ω	27Ω	†1000Ω
V 3	12SQ7GT	220KΩ	6.8 Meg.	0Ω	0Ω	500KΩ	†255KΩ	12Ω	0Ω
V 4	50L6GT	Inf.	40Ω	†180Ω	†1000Ω	470KΩ	0Ω	90Ω	180Ω
V 5	35Z5GT	Inf.	125Ω	115Ω	†33Ω	125Ω	Inf.	90Ω	40KΩ

† MEASURED FROM PIN 8 OF V5.
RADIO-PHONO SWITCH IN "RADIO" POSITION.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

101-11

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

STARRETT MODEL "GOTHAM"

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

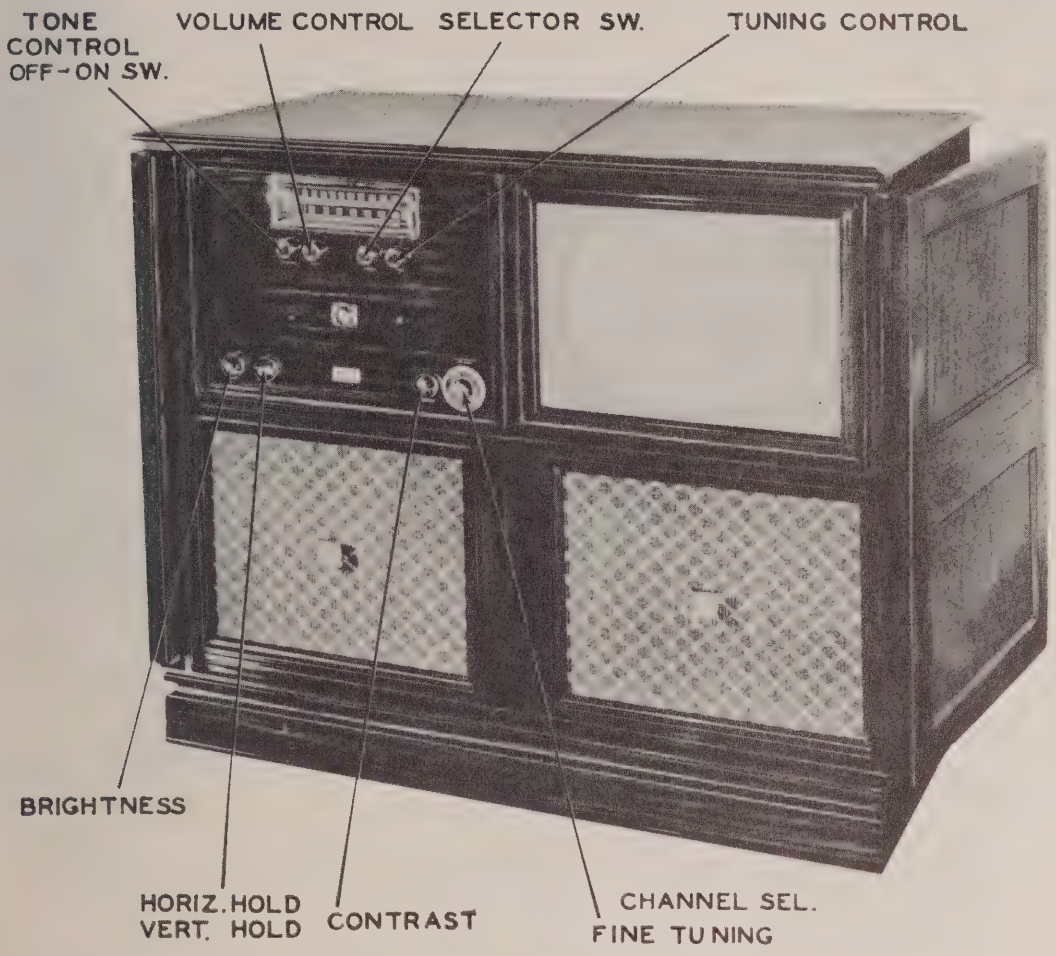
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

STARRETT MODEL "GOTHAM"

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Date 7/50 Set No. 101—Folder No. 12



STARRETT
MODEL GOTHAM

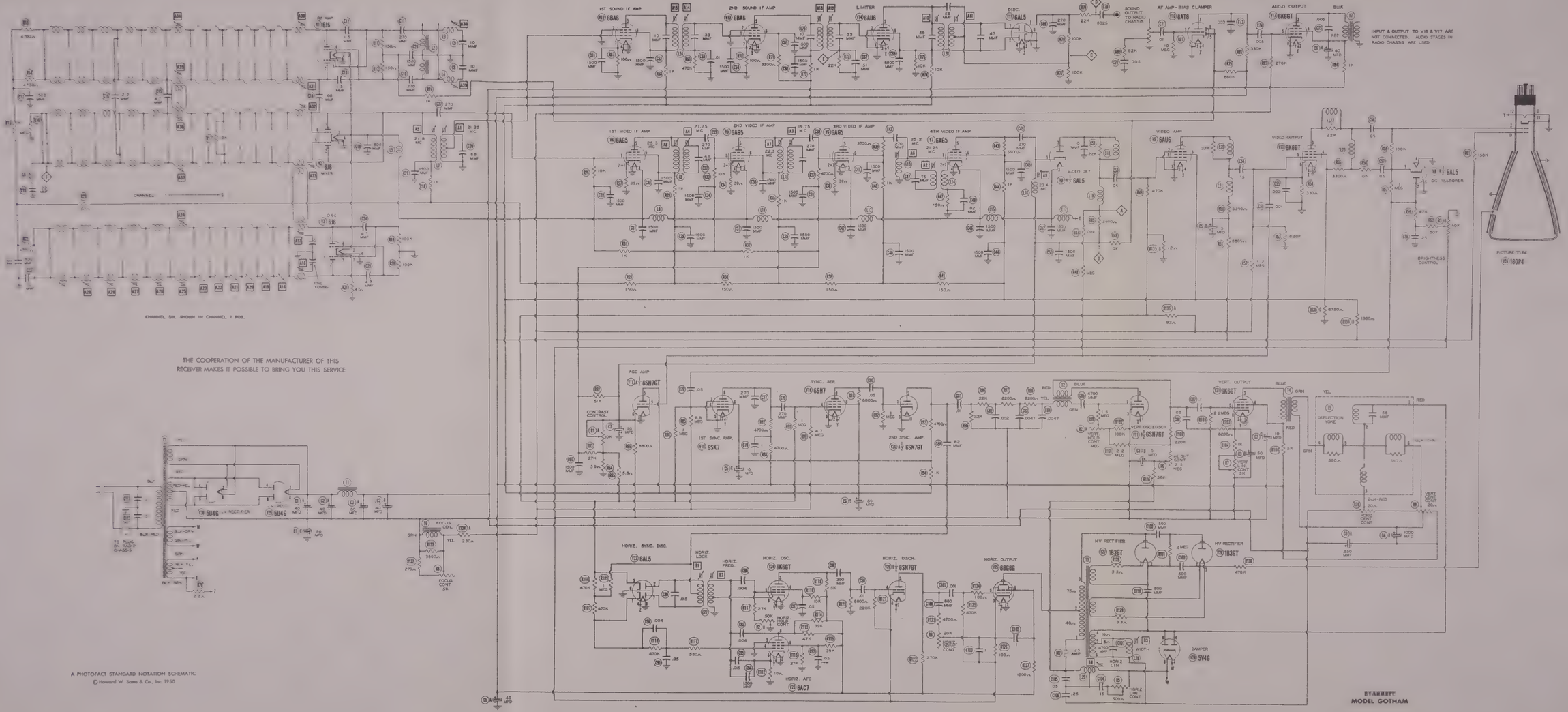
TRADE NAME	Starrett, Model "GOTHAM"
SUPPLIER	Starrett Television Corp., 601 W. 25th St., New York, New York
TYPE SET	TV-AM-FM-Phono Combination Receiver
TUBES	Forty-Four
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—	TV - Channels 2 thru 13, FM-88-108MC, AM- 540-1620KC
RATINGS	2.58 Amp. @ 117 Volts AC (TV) 1.01 Amp. @ 117 Volts AC (Radio)

INDEX

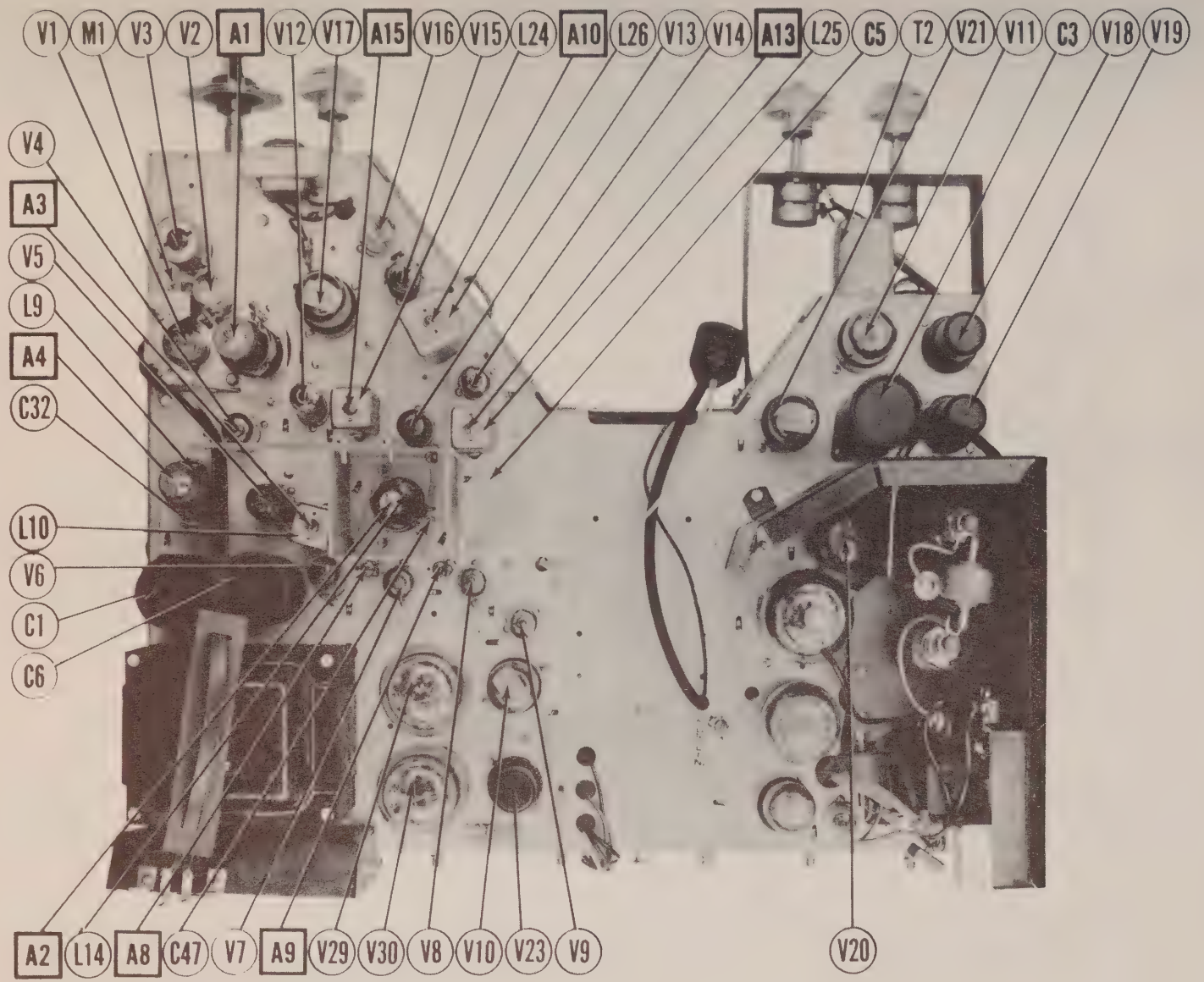
Alignment Instructions 6, 7
Dial Cord Stringing 27
Horizontal Sweep Circuit Adjustment 27
Parts List and Description ..... 21 thru 25
Photographs
Audio Chassis 16
Capacitor Identification (Radio) 14
Capacitor Identification (TV) 11, 18
Chassis-Top View (Radio) 13
Chassis-Top View (TV) 3, 20
Photographs (continued)
RF Tuner (TV) 10
Resistor Identification (Radio) 15
Resistor Identification (TV) 12, 17
Trans., Inductor and Alignment Identification (TV) 4, 9
Schematic (Radio) 19, 26
Schematic (TV) 2
Tube Placement Chart 5
Voltage and Resistance Measurements (Radio) 19, 26
Voltage and Resistance Measurements (TV) 8

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

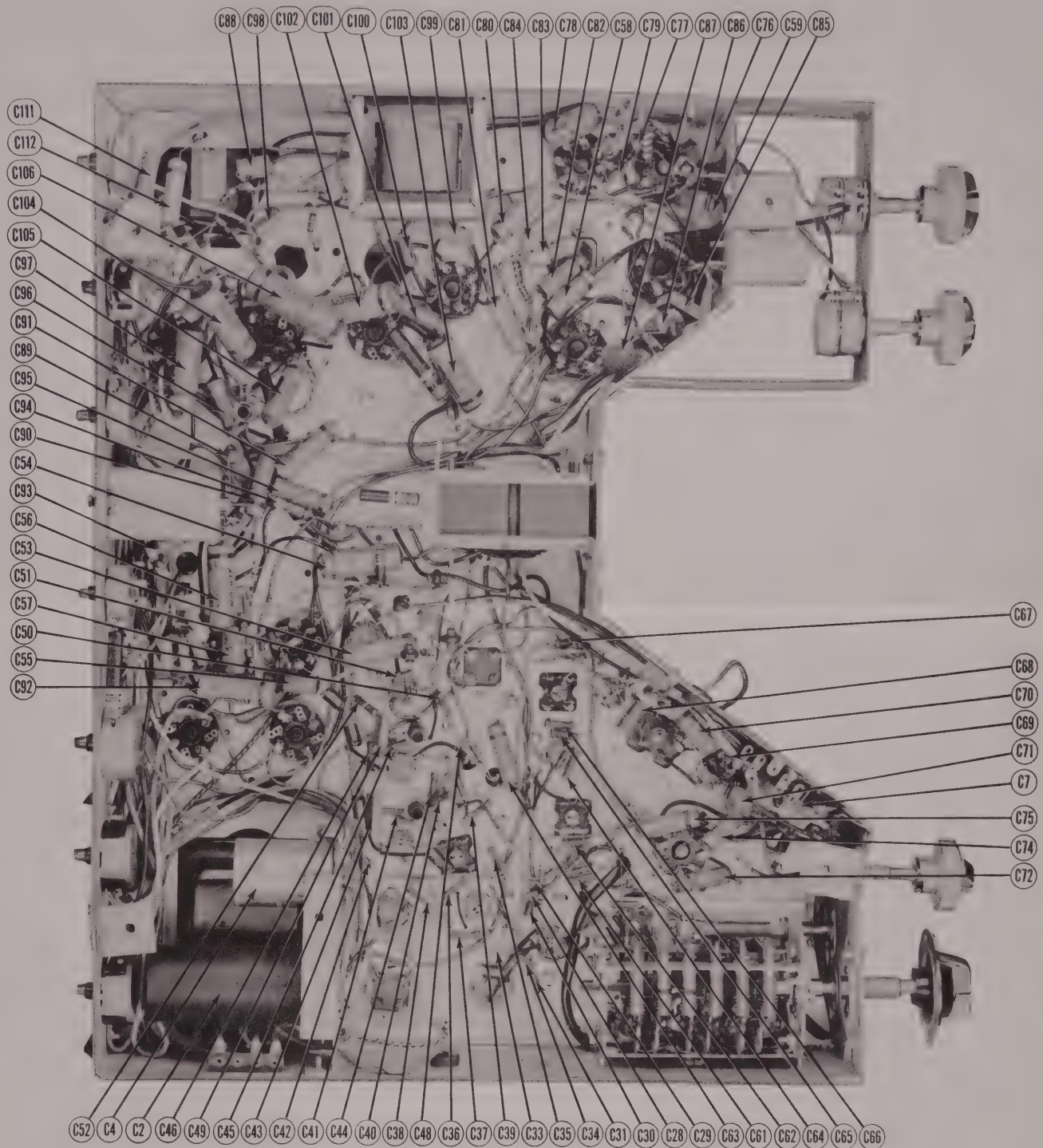
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



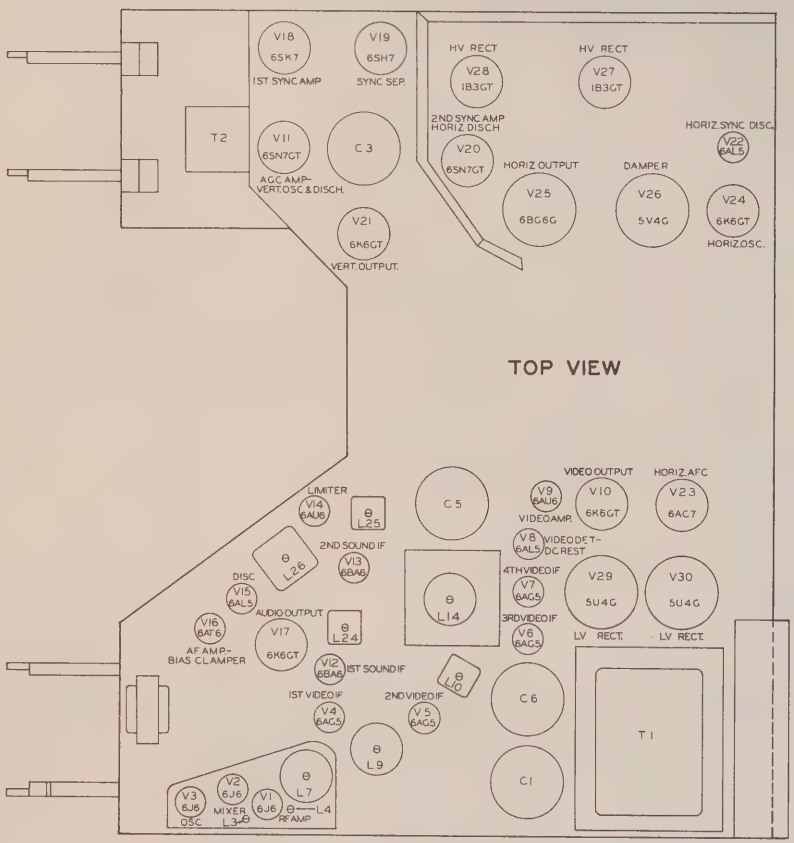
STARRETT
MODEL GOTHAM

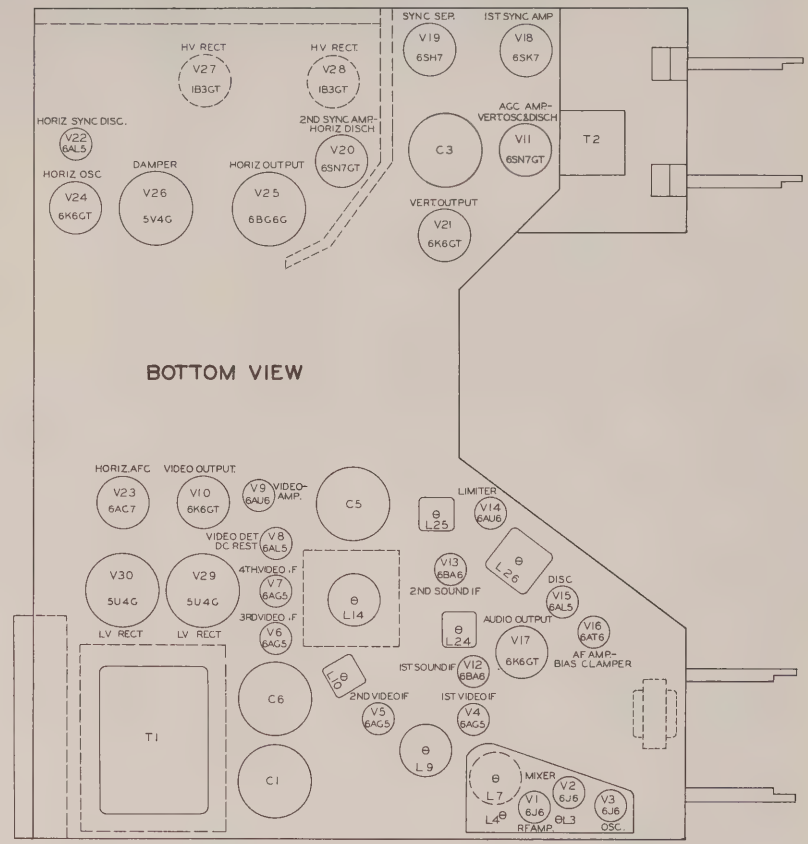


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

During alignment securely tape the end of the high voltage lead and place it away from the chassis.
Turn the function selector switch on the radio to "TELEVISION". All connecting cables must be in place before beginning alignment.

VIDEO IF ALIGNMENT

Remove the AGC amplifier tube (V11) and connect the negative lead of a 3 volt battery to the junction of R62 and R63, connect the positive lead to chassis.
Remove the local oscillator tube (V3) to prevent erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.25MC (Unmod.)	Any	DC Probe to Point (A). Common to Point (B)	A1, A2,	Adjust for MINIMUM deflection.
2.	Direct	"	19.75MC	"	"	A3	"
3.	Direct	"	27.25MC	"	"	A4	"
4.	Direct	"	21.8MC	"	"	A5	Adjust for maximum deflection.
5.	Direct	"	25.3MC	"	"	A6	"
6.	Direct	"	23.3MC	"	"	A7	"
7.	Direct	"	25.2MC	"	"	A8	"
8.	Direct	"	23.4MC	"	"	A9	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	24MC (10MC SWP)	21.25MC 25.75MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A9 for optimum response. If considerable adjustment is required readjust all traps.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.005MFD	High side to pin 1 (Grid) of 6AU6 (V14). Low side to chassis.	21.25MC (Unmod.)	Any	DC Probe thru 1 Meg. to Point (C). Common to chassis.	A10	Detune A11. Adjust A10 for maximum deflection.
11.	.005MFD	"	"	"	DC Probe to Point (D). Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
12.	.005MFD	High side to tap on trap winding of L7. Low side to chassis.	"	"	DC Probe to Point (E). Common to chassis.	A12, A13, A14, A15	Adjust for maximum deflection.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 % modulation and 450KC sweep. Use 120 % sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	.005MFD	High side to pin 1 (Grid) of 6BA6 (V13). Low side to chassis.	21.25MC (450KC SWP)	21.25MC	Any	Vert. Amp. to Point (E). Low side to chassis.	A12, A13	Adjust for maximum amplitude and symmetry as per figure 2.
11.	.005MFD	High side to tap on trap winding of L7. Low side to chassis.	"	"	"	"	A14, A15	"
12.	.005MFD	"	"	"	"	Vert. Amp. to point (D). Low side to chassis.	A10, A11	Adjust A11 so 21.25MC occurs at center of crossover lines as per figure 3. Adjust A10 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Replace the local oscillator tube (V3).
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC Probe to Point (D). Common to chassis.	A16, A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Keep slug pairs at approximately the same relative position.
14.	"	"	209.75MC	12	"	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			203.75MC	11		A19	
			197.75MC	10		A20	
			191.75MC	9		A21	
			185.75MC	8		A22	
			179.75MC	7		A23	
15.	"	"	87.75MC	6	"	A24, A25	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Keep slug pairs at approximately the same relative position.
16.	"	"	81.75MC	5	"	A26	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			71.75MC	4		A27	
			65.75MC	3		A28	
			59.75MC	2		A29	

FIG. 1

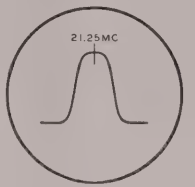


FIG. 2

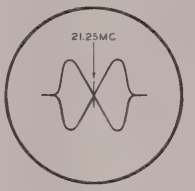


FIG. 3

FIG. 4

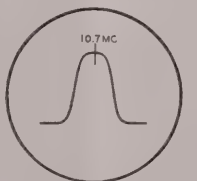


FIG. 5

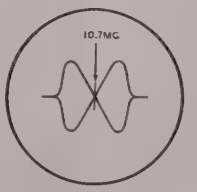


FIG. 6

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

Connect the negative lead of a 1.5 volt battery to the junction of R24 and C26, connect the negative lead to chassis.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to Point (F). Low side to chassis.	A30, A31, A32, A33	Adjust for response curve similar to figure 4 with markers above 70%.
18.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check all high band channels for response curve similar to figure 4. If markers fall below 70% on any channel, make slight adjustment of A30, A31, A32 and A33 with channel selector set for that channel. Recheck all high band channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
19.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A34, A35, A36, A37	Adjust for response curve similar to figure 4 with markers above 70%.
20.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check all low band channels for response curve similar to figure 4. If markers are below 70% on any channel, make slight adjustment of A34, A35, A36 and A37 with channel selector set for that channel. Recheck all low band channels to see that they have not been seriously effected.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

WAVE TRAP ADJUSTMENT

Wave traps A38 and A39 are used for specific types of interference and their alignment will depend upon the type encountered. With the receiver tuned to the channel having the interference set fine tuning control until interference is at maximum. Adjust A38 and A39 for minimum interference in the picture and sound, keeping the cores at approximately the same relative position. Turn one core 1/2 turn, adjust the other for minimum interference.

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
21.	.01MFD	High side to pin 7 (Grid) of 6BE6 (V34). Low side to chassis.	455KC (400 % Mod.)	AM (third position CW)	Tuning gang fully open	Across voice coil	A40, A41, A42, A43	Adjust for maximum output.
22.	.01MFD	"	1600KC	"	1600KC	"	A44	"
23.	.01MFD	"	600KC	"	600KC	"	A45	Adjust for maximum output. Repeat steps 22 and 23 until no further improvement can be made.
24.		Loop	1400KC	"	Tune for max. output	"	A46	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT

Use frequency modulated signal with 60 % modulation and 450KC sweep. Use 120 % sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
25.	.05MFD	High side to pin 1 (Grid) of 6BA6 (V35). Low side to chassis.	10.7MC (450KC Sweep)	FM (max. CW)	Tuning gang fully open	Vert. Amp. to Point (G). Low side to chassis.	A47, A48, A49	Disconnect stabilizer capacitor (C117). Adjust for maximum amplitude and symmetry as per figure 5.
26.	.05MFD	High side to pin 7 (Grid) of 6BE6 (V33). Low side to chassis.	"	"	"	"	A50, A51	"
27.	.05MFD	"	"	"	"	Vert. Amp. to Point (H). Low side to chassis.	A52, A53	Reconnect capacitor C117. Adjust A52 and A53 simultaneously for a symmetrical pattern of maximum amplitude with 10.7MC marker at center of crossover lines as per figure 6. Slightly retouch A47 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
28	300Ω carbon res.	High side thru 300Ω to ungrounded side of FM 300Ω lead. Low side to chassis.	108MC (Unmod.)	FM	108MC	DC Probe to Point (H). Common to chassis.	A54, A55	Adjust for maximum deflection.
29	"	"	88MC	"	88MC	"	A56, A57	Adjust for maximum deflection. Repeat steps 26 and 29 until no further improvement can be made.

STARRETT MODEL GOTHAM

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	115VDC	115VDC	6.3VAC	0V.	.4VDC	.4VDC	0V.		
V 2	6J6	105VDC	105VDC	6.3VAC	0V.	-1.7VDC	- 1.7VDC	0V'		
V 3	6J6	90VDC	90VDC	6.3VAC	0V.	§-1.8VDC	§-2VDC	.2VDC		
V 4	6AG5	-3.6VDC	.1VDC	0V.	6.3VAC	95VDC	95VDC	.1VDC		
V 5	6AG5	-2.3VDC	.1VDC	6.3VAC	0V.	95VDC	95VDC	.1VDC		
V 6	6AG5	-2VDC	.1VDC	6.3VAC	0V.	90VDC	100VDC	.1VDC		
V 7	6AG5	0V.	1VDC	6.3VAC	0V.	75VDC	100VDC	1VDC		
V 8	6AL5	-2.7VDC	-85VDC	6.3VAC	0V.	-70VDC	0V.	-3.2VDC		
V 9	6AU6	-7VDC	0V.	0V.	6.3VAC	240VDC	110VDC	0V.		
V 10	6K6GT	0V.	0V.	90VDC	110VDC	-2.1VDC	0V.	6.3VAC	2.3VDC	
V 11	6SN7GT	♦-95VDC	♦360VDC	♦0V.	-2VDC	110VDC	-2.9VDC	6.3VAC	0V:	
V 12	6BA6	0V.	0V.	0V.	6.3VAC	100VDC	100VDC	1VDC		
V 13	6BA6	0V.	0V.	6.3VAC	0V.	100VDC	95VDC	1VDC		
V 14	6AU6	-4VDC	0V.	0V.	6.3VAC	40VDC	40VDC	0V.		
V 15	6AL5	-.2VDC	-8VDC	6.3VAC	0V.	0V.	0V.	-3.4VDC		
V 16	6AT6	-.6VDC	0V.	0V.	6.3VAC	-.2VDC	-.2VDC	75VDC		
V 17	6K6GT	-18.5VDC	6.3VAC	235VDC	250VDC	-15VDC	0V.	0V.	0V:	
V 18	6SK7	0V.	0V.	0V.	8VDC	0V.	100VDC	6.3VAC	190VDC	
V 19	6SH7	0V.	0V.	0V.	-1.8VDC	0V.	110VDC	6.3VAC	105VDC	
V 20	6SN7GT	-1.8VDC	70VDC	0V.	♦-30VDC	♦65VDC	♦0V.	6.3VAC	0V.	
V 21	6K6GT	♦90VDC	6.3VAC	♦260VDC	♦270VDC	♦0V.	♦23VDC	0V.	♦26VDC ♦55VDC	
V 22	6AL5	-.6VDC	-.9VDC	0V.	6.3VAC	-2VDC	0V.	-16VDC		
V 23	6AC7	0V.	0V.	0V.	-1VDC	.1VDC	100VDC	6.3VAC	180VDC	
V 24	6K6GT	0V.	0V.	175VDC	205VDC	-24VDC	390VDC	6.3VAC	.1VDC	
V 25	6BG6G	0V.	6.3VAC	♦10VDC	0V.	♦-11VDC	0V.	0V.	♦340VDC	TOP CAP ♦
V 26	5V4G	0V.	#6.3VAC	0V.	280VDC	0V.	280VDC	280VDC	#0V.	
V 27	1B3GT	* DO NOT MEASURE.								
V 28	1B3GT	* DO NOT MEASURE.								
V 29	5U4G	0V.	300VDC	0V.	360VAC	0V.	360VAC	0V.	300VDC	
V 30	5U4G	0V.	300VDC	0V.	360VAC	0V.	360VAC	0V.	300VDC	
V31	16DP4	0V.	-40VDC	PIN 10 270VDC	PIN 11 0V.	PIN 12 6.3VAC				

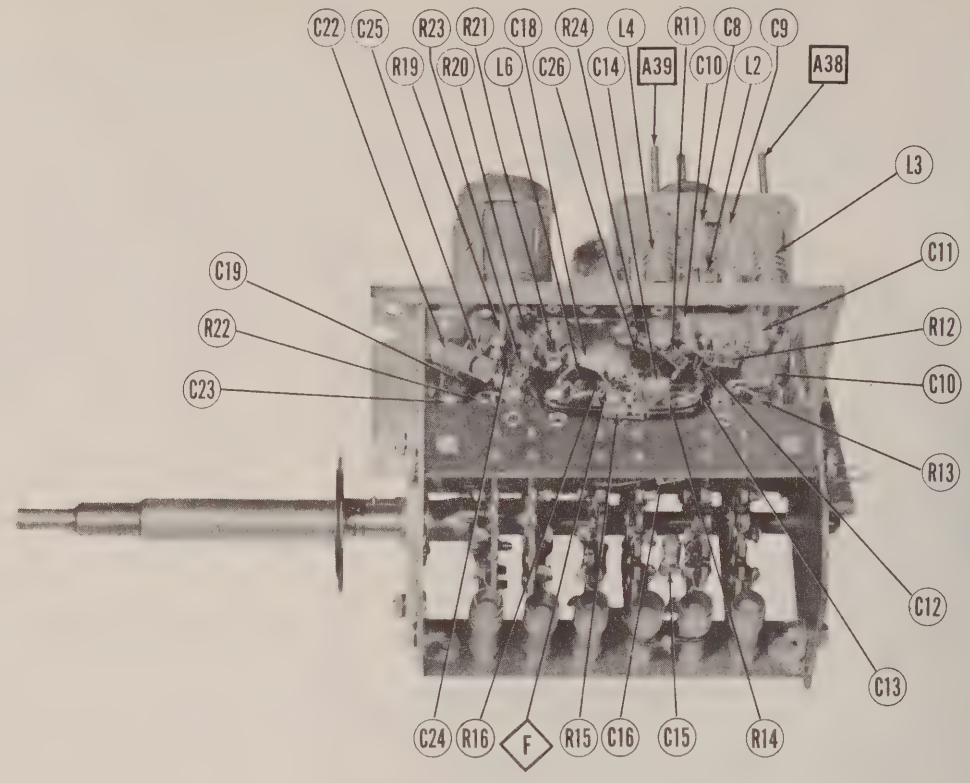
§ TAKEN WITH VACUUM TUBE VOLTMETER.
♦ MEASURED FROM PIN 3 OF V11.
MEASURED FROM PIN 8 OF V26.

RESISTANCE READINGS

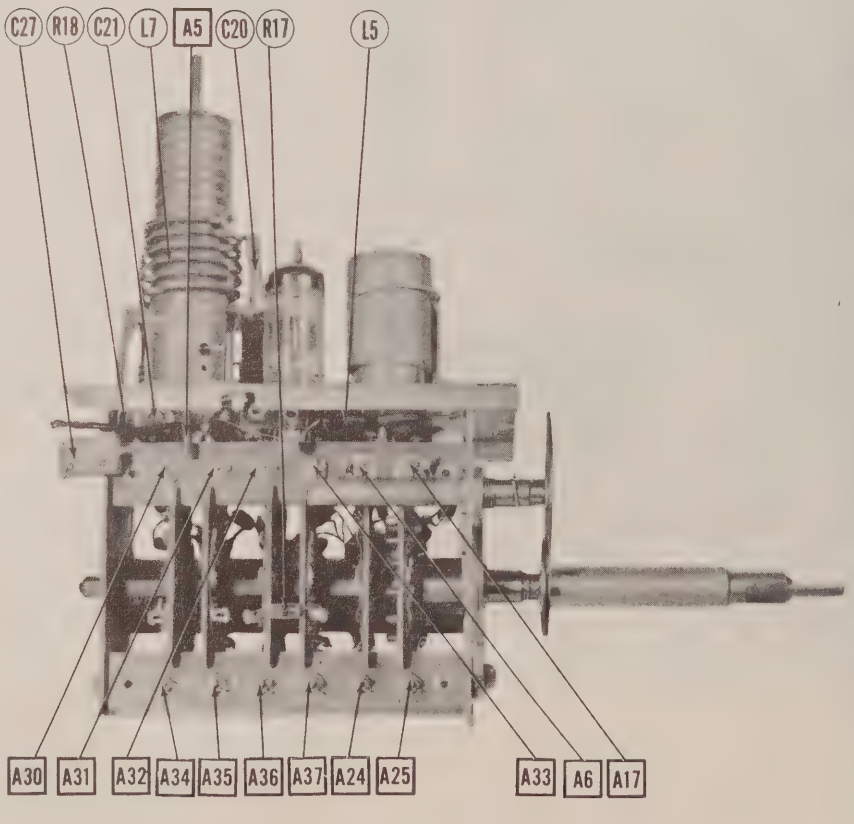
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†6KΩ	†6KΩ	.1Ω	0Ω	14KΩ	14KΩ	0Ω		
V 2	6J6	†3.5KΩ	†3.5KΩ	.1Ω	0Ω	1 Meg.	1 Meg.	0Ω		
V 3	6J6	†6KΩ	†6KΩ	.1Ω	0Ω	100KΩ	100KΩ	47Ω		
V 4	6AG5	30KΩ	39Ω	0Ω	.1Ω	†3KΩ	†3KΩ	39Ω		
V 5	6AG5	29KΩ	39Ω	.1Ω	0Ω	†2.8KΩ	†2.8KΩ	39Ω		
V 6	6AG5	23KΩ	39Ω	.1Ω	0Ω	†5KΩ	†2.5KΩ	39Ω		
V 7	6AG5	.2Ω	150Ω	.1Ω	0Ω	†8KΩ	†2.4KΩ	150Ω		
V 8	6AL5	4KΩ	200KΩ	.1Ω	0Ω	1 Meg.	0Ω	8.5KΩ		
V 9	6AU6	470KΩ	0Ω	0Ω	.1Ω	†11KΩ	†1.4KΩ	0Ω		
V 10	6K6GT	0Ω	0Ω	†5KΩ	†1.4KΩ	820KΩ	Inf.	.1Ω	330Ω	
V 11	6SN7GT	♦2.5Meg.	#280KΩ	♦0Ω	1 Meg.	†1.4KΩ	4KΩ	.1Ω	0Ω	
V 12	6BA6	0Ω	0Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	100Ω		
V 13	6BA6	470KΩ	0Ω	.1Ω	0Ω	†2.4KΩ	†4.7KΩ	100Ω		
V 14	6AU6	22KΩ	0Ω	0Ω	.1Ω	†7.5Ω	†7.5KΩ	0Ω		
V 15	6AL5	200KΩ	100KΩ	.1Ω	0Ω	0Ω	0Ω	100KΩ		
V 16	6AT6	10 Meg.	0Ω	0Ω	.1Ω	14KΩ	14KΩ	†330KΩ		
V 17	6K6GT	100Ω	.1Ω	†1.5KΩ	†1000Ω	270KΩ	300KΩ	0Ω	0Ω	
V 18	6SK7	0Ω	0Ω	0Ω	800KΩ	0Ω	†2.5KΩ	.1Ω	†10KΩ	
V 19	6SH7	0Ω	0Ω	Inf.	800KΩ	0Ω	†1.4KΩ	.1Ω	†8.2KΩ	
V 20	6SN7GT	1 Meg.	†7KΩ	0Ω	♦220KΩ	†270KΩ	♦0Ω	.1Ω	0Ω	
V 21	6K6GT	300Ω	.1Ω	†5KΩ	†5KΩ	♦2.2 Meg.	450Ω	0Ω	♦5KΩ ♦1.2KΩ	
V 22	6AL5	960KΩ	1.5 Meg.	0Ω	.1Ω	12Ω	0Ω	1.5 Meg.		
V 23	6AC7	0Ω	0Ω	0Ω	1.5 Meg.	10Ω	27KΩ	.1Ω	†22KΩ	
V 24	6K6GT	Inf.	0Ω	†5KΩ	†10KΩ	27KΩ	250KΩ	.1Ω	9Ω	
V 25	6BG6G	Inf.	.1Ω	♦100Ω	Inf.	♦470KΩ	Inf.	0Ω	†2KΩ	TOP CAP #85Ω
V 26	5V4G	Inf.	#.1Ω	Inf.	†54Ω	Inf.	†54Ω	†48Ω	#0Ω	
V 27	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #120Ω
V 28	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP Inf.
V 29	5U4G	Inf.	5.5KΩ	Inf.	460Ω	Inf.	460Ω	Inf.	5.5KΩ	
V 30	5U4G	Inf.	5.5KΩ	Inf.	460Ω	Inf.	460Ω	Inf.	5.5KΩ	
V31	16DP4	0Ω	1.2 Meg.	PIN 10 †140KΩ	PIN 11 0Ω	PIN 12 .1Ω				

† MEASURED FROM PIN 8 OF V29.
# MEASURED FROM PIN 8 OF V26.
♦ MEASURED FROM PIN 3 OF V11.

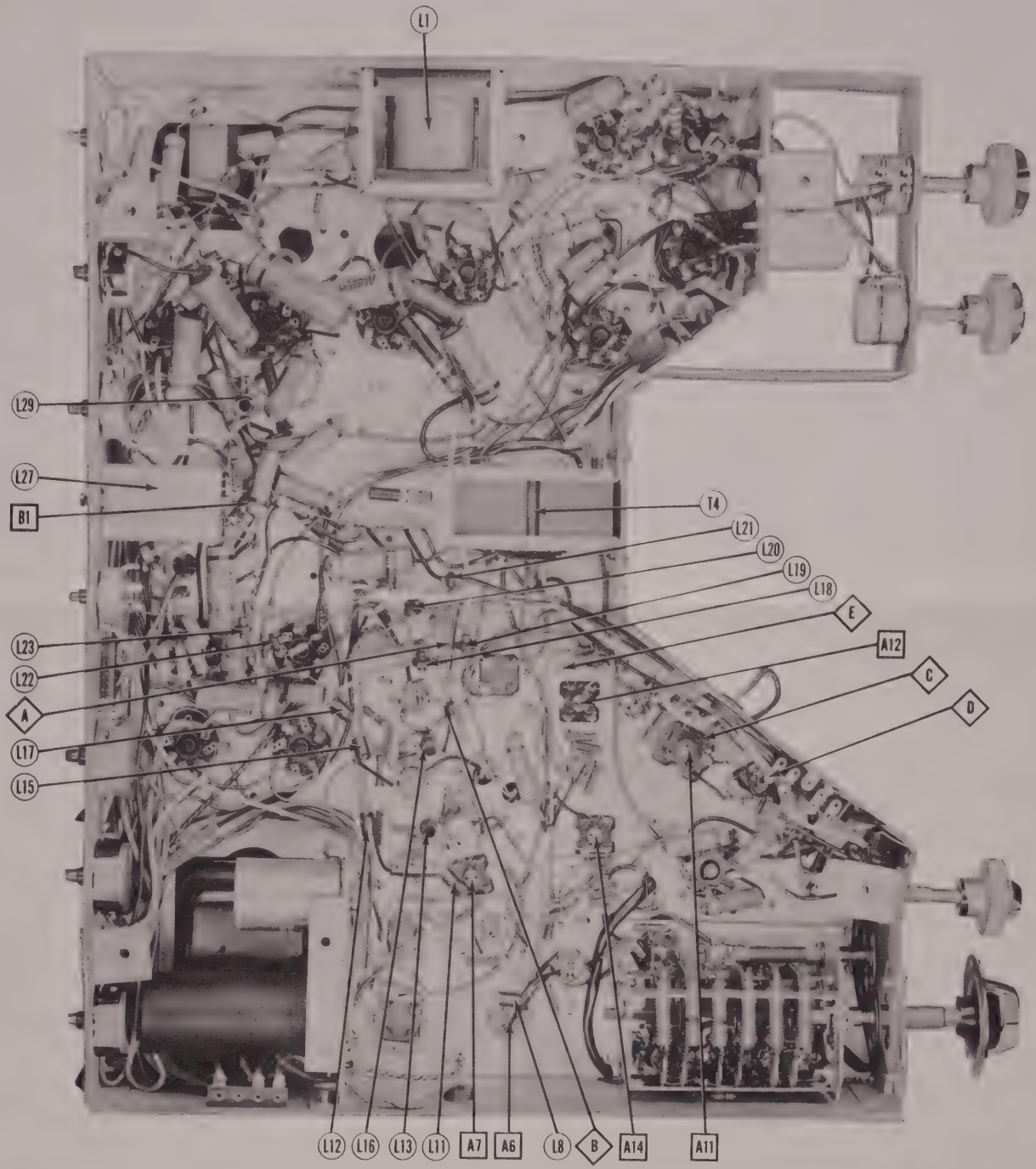
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



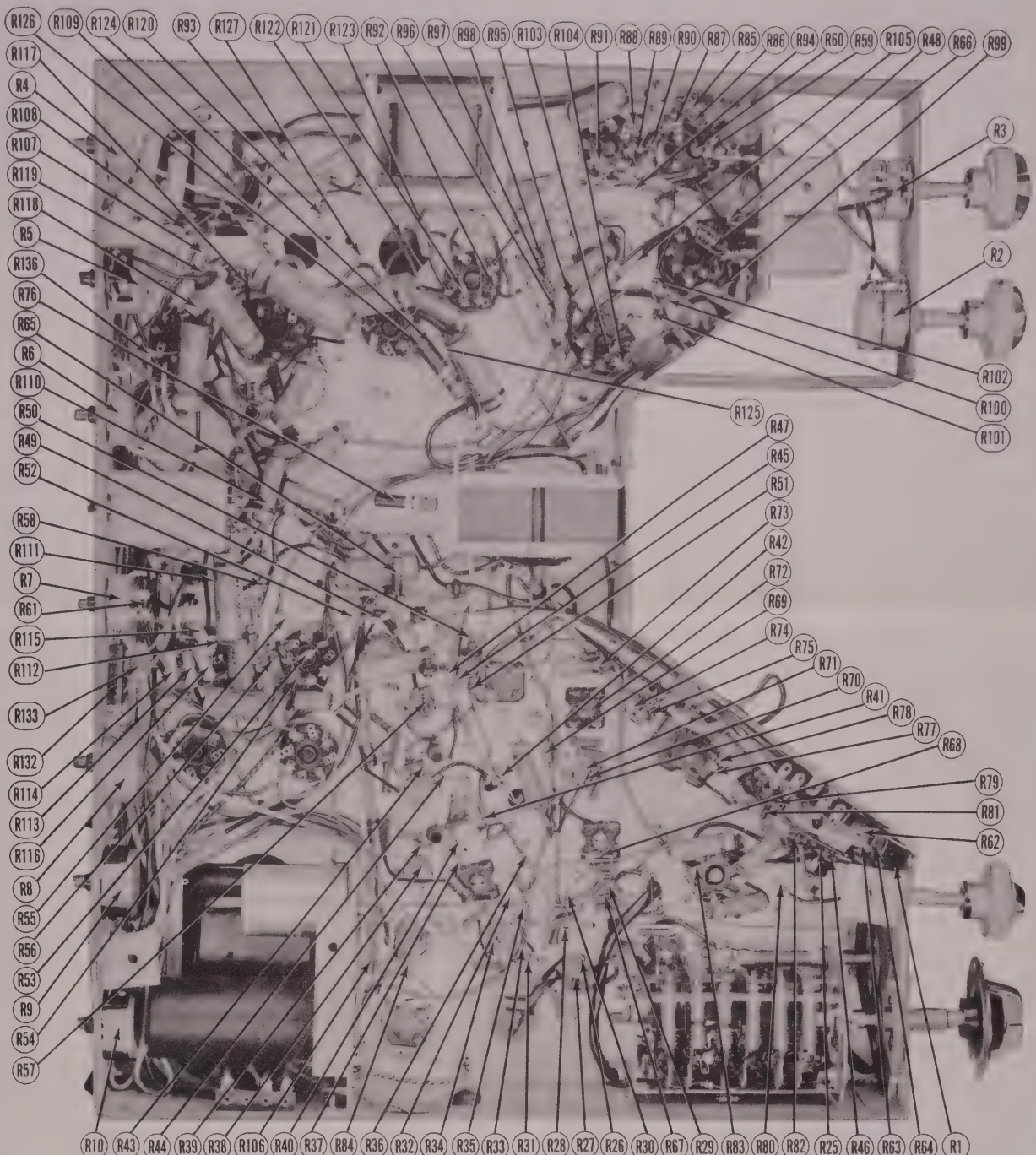
RF TUNER-RIGHT SIDE



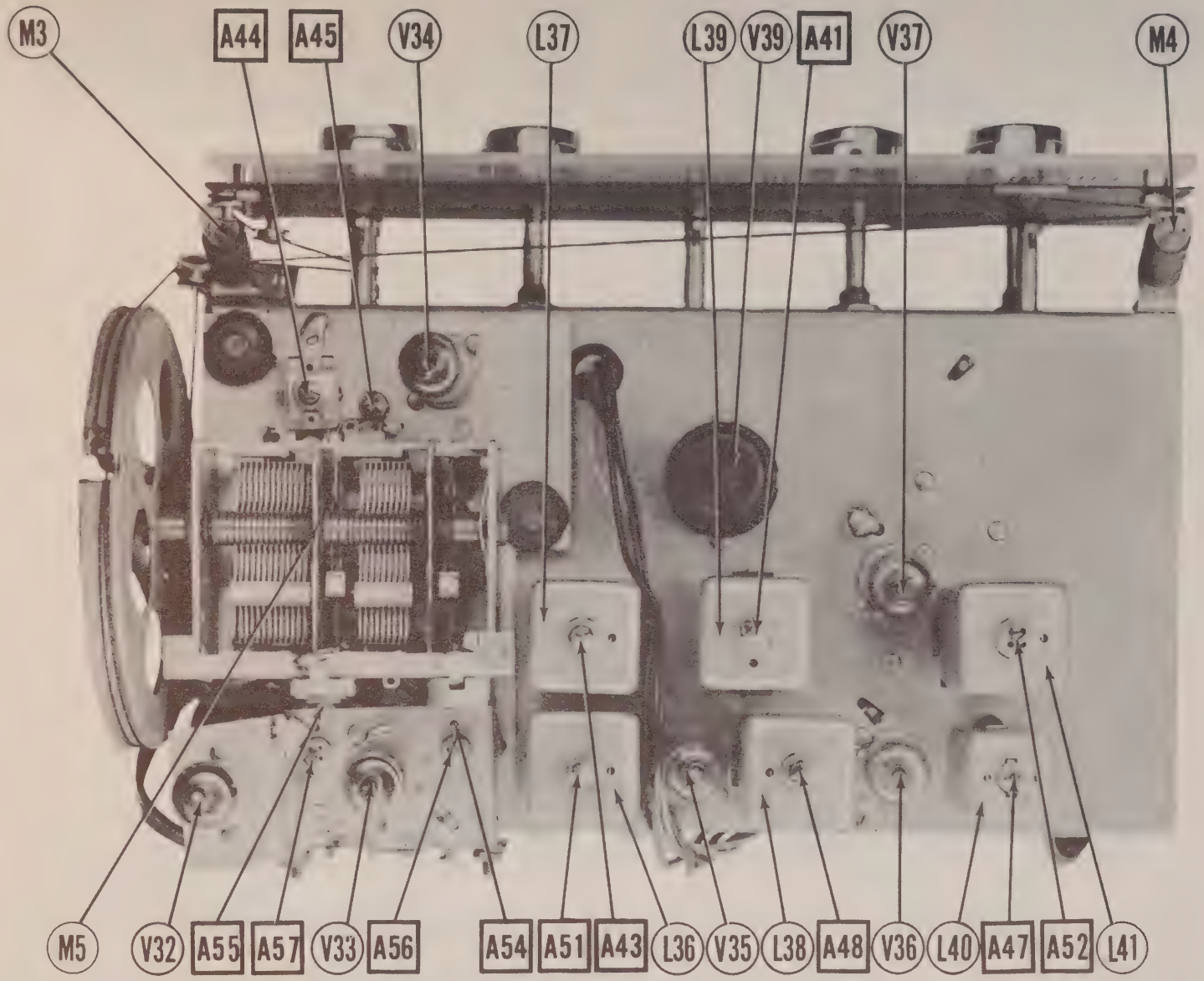
RF TUNER-LEFT SIDE



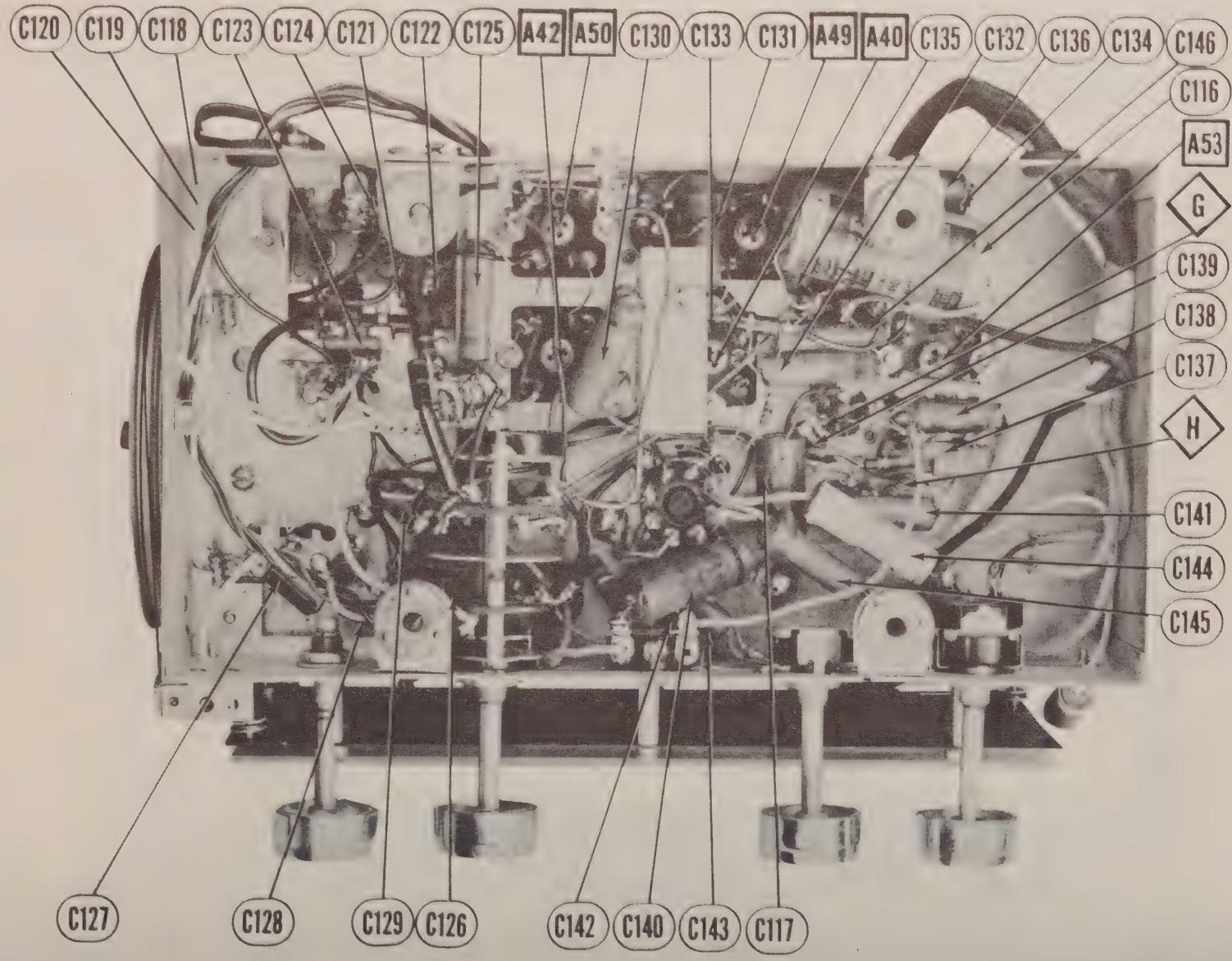
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



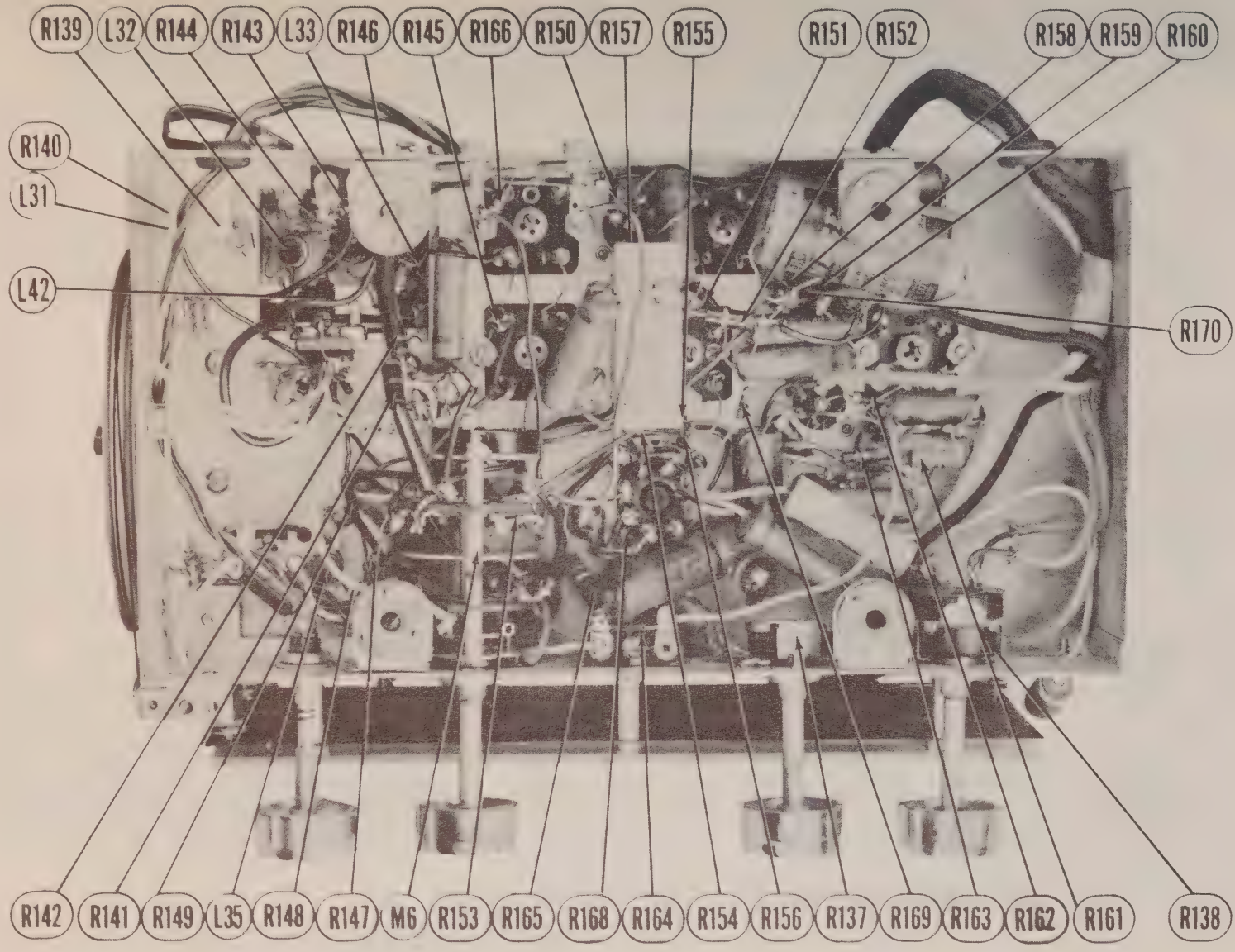
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



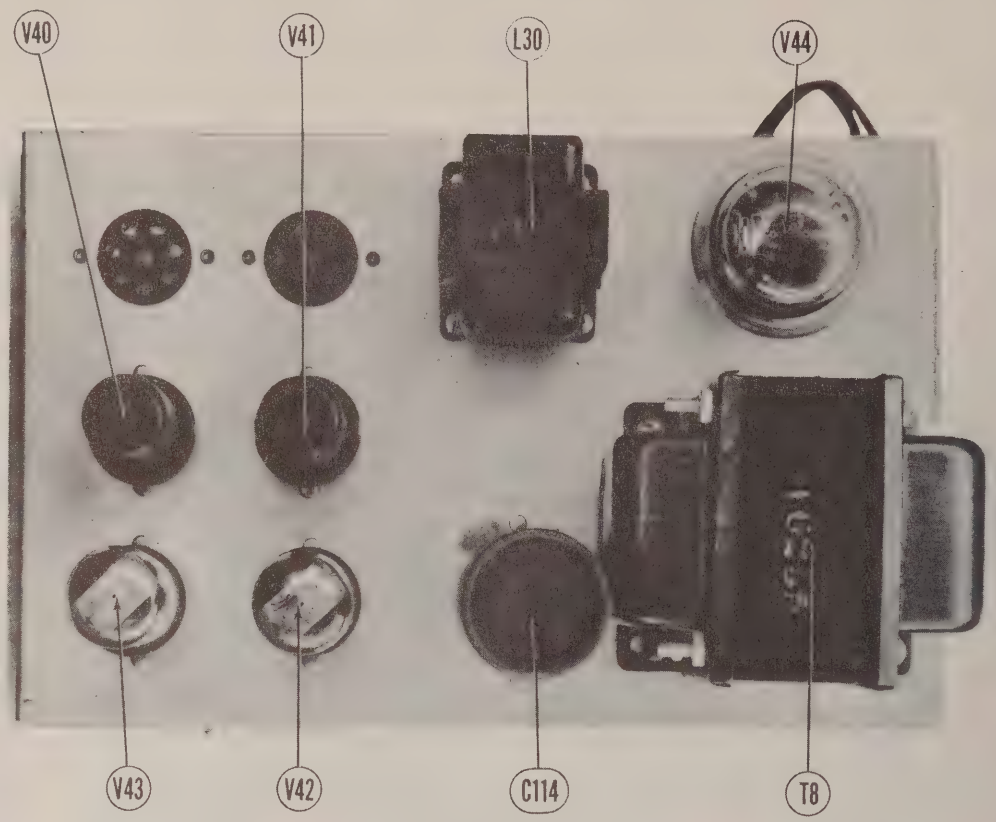
RADIO CHASSIS-TOP VIEW



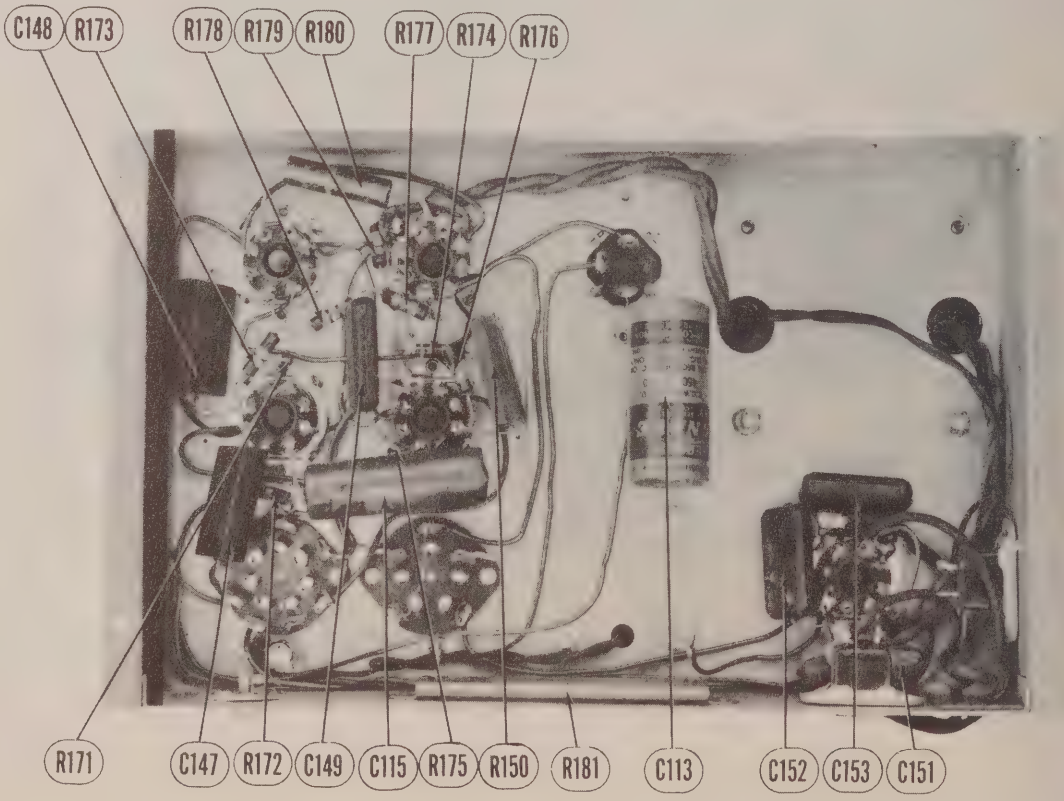
RADIO CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



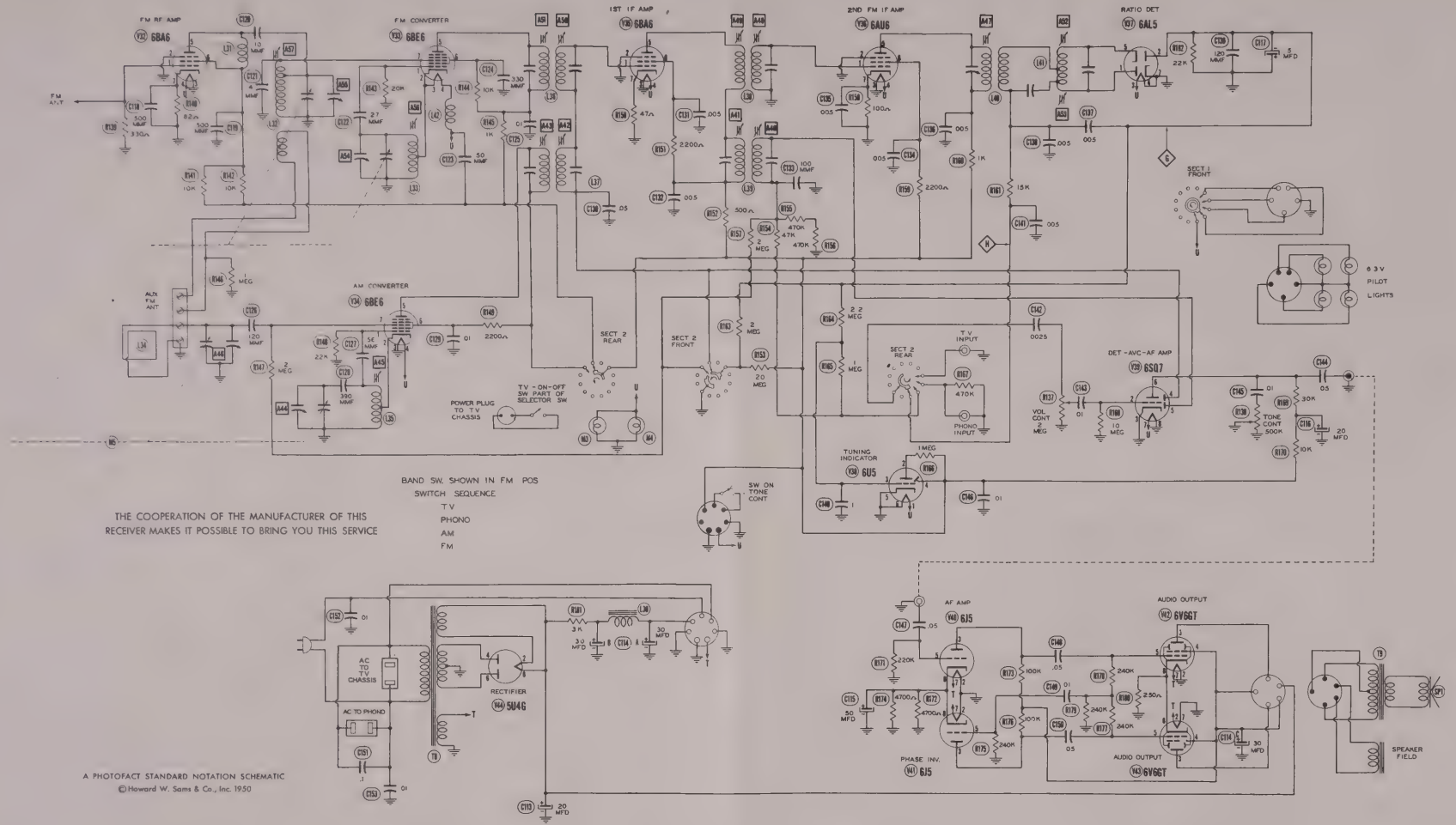
RADIO CHASSIS - BOTTOM VIEW - RESISTOR IDENTIFICATION



AUDIO CHASSIS–TOP VIEW



AUDIO CHASSIS–BOTTOM VIEW



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
†	V32	6BA6	0V.	0V.	0V.	6.3VAC	110VDC	110VDC	1.1VDC	
†	V33	6BE6	1-3VDC	0V.	0V.	6.2VAC	165VDC	70VDC	0V.	
■	V34	6BE6	1-16VDC	0V.	0V.	6.3VAC	205VDC	180VDC	0V.	
‡	V35	6BA6	.5VDC	0V.	0V.	6.3VAC	155VDC	140VDC	1VDC	
■	V36	6AU6	0V.	0V.	0V.	6.3VAC	200VDC	205VDC	1.3VDC	
†	V37	6AL5	0V.	-9VDC	6.3VAC	0V.	5.8VDC	0V.	0V	
■	V38	6U5	6.3VAC	170VDC	-.3VDC	210VDC	0V	0V.		
■	V39	6SQ7	0V.	-.5VDC	0V	-.5VDC	-.4VDC	170VDC	6.3VAC	0V.
	V40	6J5	0V	0V.	160VDC	0V.	0V.	0V	6.3VAC	6.8VDC
	V41	6J5	0V.	0V.	160VDC	0V.	0V.	0V.	6.3VAC	6.8VDC
	V42	6V6GT	0V	0V	320VDC	350VDC	.1VDC	.1VDC	6.3VAC	16VDC
	V43	6V6GT	0V.	6.3VAC	320VDC	350VDC	.1VDC	0V.	0V.	16VDC
	V44	5U4G	0V	395VDC	0V.	395VAC	16VAC	290VAC	0V.	395VDC

† TAKEN IN "FM" POSITION.
■ TAKEN IN "AM" POSITION.
‡ TAKEN WITH VACUUM TUBE VOLTMETER.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

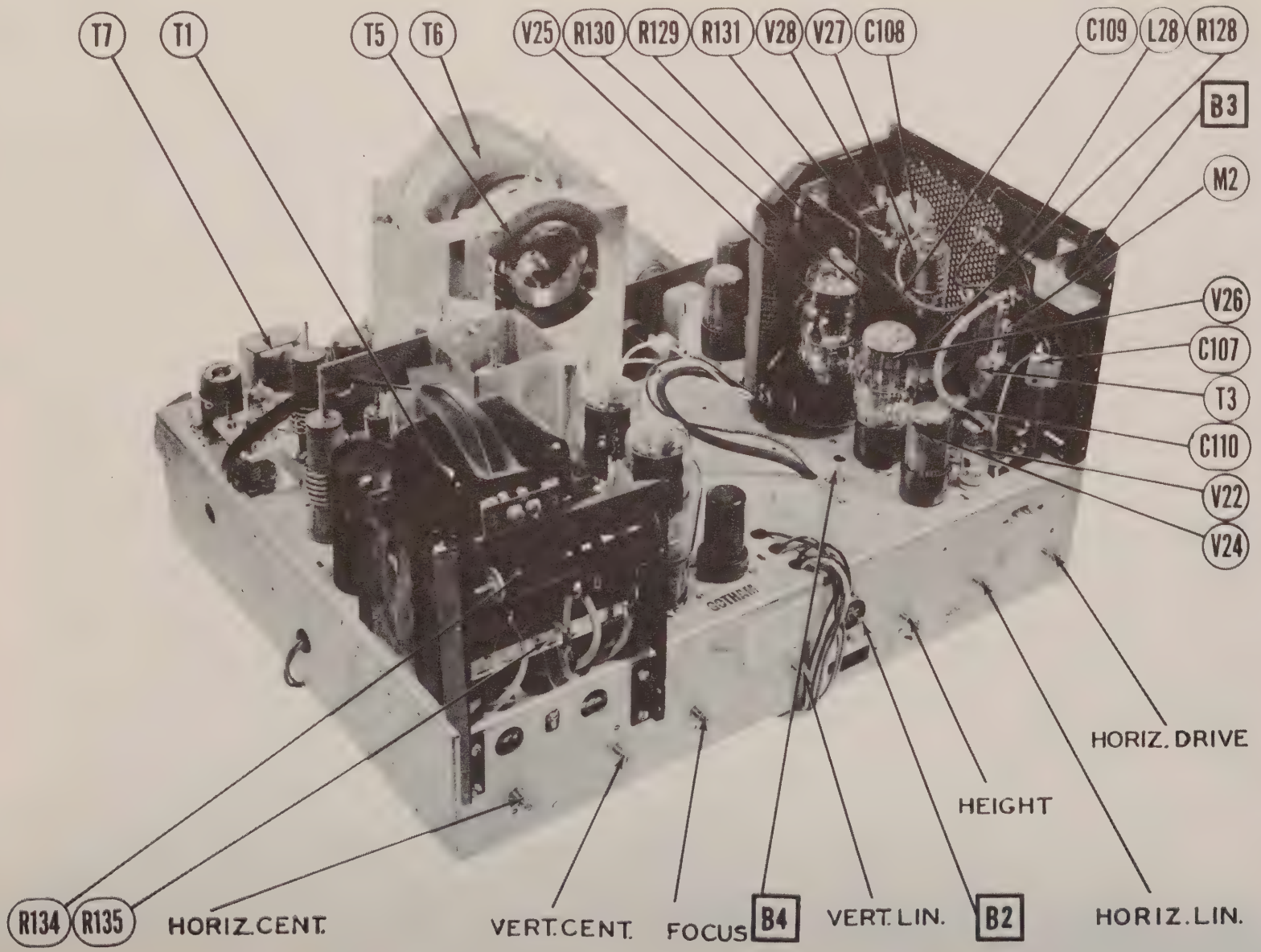
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
†	V32	6BA6	350Ω	0Ω	0Ω	.1Ω	8KΩ	8KΩ	82Ω	
†	V33	6BE6	20KΩ	0Ω	0Ω	.1Ω	±4KΩ	±15KΩ	0Ω	
■	V34	6BE6	22KΩ	2Ω	0Ω	.1Ω	±3KΩ	±5KΩ	4.5 Meg.	
‡	V35	6BA6	3 Meg.	0Ω	0Ω	.1Ω	±5KΩ	±7KΩ	47Ω	
■	V36	6AU6	2Ω	90Ω	0Ω	.1Ω	±6KΩ	±8KΩ	100Ω	
†	V37	6AL5	Inf.	22KΩ	.1Ω	0Ω	Inf.	0Ω	0Ω	
■	V38	6U5	.1Ω	±1 Meg.	1 Meg.	±2.5KΩ	0Ω	0Ω		
■	V39	6SQ7	0Ω	10 Meg.	0Ω	3 Meg.	800KΩ	68KΩ	.1Ω	0Ω
	V40	6J5	0Ω	0Ω	±100KΩ	0Ω	220KΩ	0Ω	1Ω	2.2KΩ
	V41	6J5	0Ω	0Ω	±100KΩ	0Ω	240KΩ	0Ω	1Ω	2.2KΩ
	V42	6V6GT	0Ω	0Ω	±1.2KΩ	±900Ω	480KΩ	250KΩ	1Ω	250Ω
	V43	6V6GT	0Ω	1Ω	±1.2KΩ	±900Ω	480KΩ	Inf.	0Ω	250Ω
	V44	5U4G	Inf.	80KΩ	Inf.	84Ω	Inf.	84Ω	Inf.	80KΩ

† TAKEN IN "FM" POSITION
■ TAKEN IN "AM" POSITION.
▫ MEASURED FROM PIN 8 OF V44.

STARRETT
MODEL GOTHAM

RADIO SCHEMATIC



CHASSIS-TOP VIEW

TV PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		STARRETT PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6J6	6J6	7BF	
V2	Mixer	6J6	6J6	7BF	
V3	Oscillator	6J6	6J6	7BF	
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	4th Video IF	6AG5	6AG5	7BD	
V8	Video Det. -DC Restorer	6AL5	6AL5	6BT	
V9	Video Amp.	6AU6	6AU6	7BK	
V10	Video Output	6K6GT	6K6GT	7S	
V11	AGC Amp. -Vert. Osc. -Vert. Disch.	6SN7GT	6SN7GT	8BD	
V12	1st Sound IF	6BA6	6BA6	7BK	
V13	2nd Sound IF	6BA6	6BA6	7BK	
V14	Limiter	6AU6	6AU6	7BK	
V15	Disc.	6AL5	6AL5	6BT	
V16	AF Amp. -Bias Clamper	6AT6	6AT6	7BT	
V17	Audio Output	6K6GT	6K6GT	7S	
V18	1st Sync. Amp.	6SK7	6SK7	8N	
V19	Sync. Sep.	6SH7	6SH7	8BK	
V20	2nd Sync. Amp. -Hor. Disch.	6SN7GT	6SN7GT	8BD	
V21	Vert. Output	6K6GT	6K6GT	7S	
V22	Hor. Sync. Disc.	6AL5	6AL5	6BT	
V23	Hor. AFC	6AC7	6AC7	8N	
V24	Hor. Osc.	6K6GT	6K6GT	7S	
V25	Hor. Output	6BG6G	6BG6G	5BT	
V26	Damper	5V4G	5V4G	5L	
V27	HV Rectifier	1B3GT	1B3GT	3C	
V28	HV Rectifier	1B3GT	1B3GT	3C	
V29	LV Rectifier	5U4G	5U4G	5T	
V30	LV Rectifier	5U4G	5U4G	5T	
V31	Picture Tube	16DP4	16DP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	STARRETT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	450		AFH82J16E		UP9CJ729		TVL-25	◓ Filter
B	10	450							■ Vert. Osc. Decoup.
C	80	150							▲ Filter
C2A	40	450		AFH882J		UP9CJ897		TVL-30	◓ Filter
B	40	450							■ Filter
C	10	450							▲ Vert. Output Decoup.
C3A	80	450		AFH16J10B		UP9BJ730		TVL-18	◓ Filter
B	50	50							▲ Vert. Output Cath. Byp.
C4A	250	10		AF50R200S		UP7BJ808		TVL-66	◓ Hor. Cent. Cont. Byp.
B	1000	6							▲ Vert. Cent. Cont. Byp.
C5A	40	450		AFH82J2H		UP9CJ731		TVL-53	◓ Filter
B	10	450							■ Low Pass Filter
C	10	350							▲ Decoupling
C6A	40	450		AFH82J16E		UP9CJ915		TVL-25	◓ Output Decoup.
B	80	150							▲ Filter
C7	50	50		PRS50/50		BR505		TVA-16	AGC Filter
C8	10			CN10JNPO	TCZ-10		NPOK-10		Fixed Trimmer
C9	10			CN10JNPO	TCZ-10		NPOK-10		Fixed Trimmer
C10	270			GP270M	D6-271		GP2K-270		RF Coupling
C11	270			GP270M	D6-271		GP2K-270		RF Coupling
C12	1.5				TCZ-1.5		NPOK-1.5		Neutralizing
C13	1.5				TCZ-1.5		NPOK-1.5		Neutralizing
C14	.68				TCZ-.68				RF Coupling
C15	4.7			GP5K	TCZ-4.7		NPOK-4.7		RF Coupling
C16	2.2				TCZ-2.2				RF Coupling
C17	1500			GP1500M	D6-152		GP2L-0015		RF Decoupling
C18	22			CN22KN750	TCN-22		N750K-22		Fixed Trimmer
C19	1500			GP1500M	D6-152		GP2L-0015		Filament Bypass
C20	68			CN68JNPO	TCZ-68		NPOM-68		Fixed Trimmer
C21	1500			GP1500M	D6-152		GP2L-0015		Mixer Plate Decoup.
C22	1500			GP1500M	D6-152		GP2L-0015		Osc. Decoupling
C23	10			CN10KNPO	TCZ-10		GP1K-10		Osc. Decoupling
C24	4.7			GP5K	TCZ-4.7		NPOK-4.7		Osc. Feedback
C25	4.7			GP5K	TCZ-4.7		NPOK-4.7		Osc. Feedback
C26	1500			GP1500M	D6-152		GP2L-0015		AGC Filter
C27	270	500		1468-00025	D6-271		GP2K-270		IF Coupling
C28	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter
C29	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass
C30	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st V. IF Decoup.
C31	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st V. IF Fil. Byp.
C32	43			CN43JNPO	TCZ-43		NPOM-43		Fixed Trimmer
C33	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C34	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter
C35	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass
C36	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoup.
C37	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd V. IF Fil. Bypass
C38	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C39	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter
C40	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass
C41	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoup.
C42	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	3rd V. IF Fil. Byp.
C43	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C44	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass
C45	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	4th V. IF Decoupling
C46	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	4th V. IF Fil. Byp.
C47	75			CN75JNPO	TCZ-75		NPOM-75		Fixed Trimmer
C48	82			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	4th V. IF Cath. Byp.
C49	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C50	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass
C51	10			GP10M	D6-100	5W5Q1	GP1K-10	MS-41	V. Diode Filter
C52	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	V. Det. DC Res. Fil. Byp.

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA STARRETT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C53	.05	400		P488-05	DF-503	PTE4S5		TM-15	Video Coupling
C54	.05	600		P688-05	DF-503	PTE6S5		TM-15	Video Coupling
C55	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	2nd V. Amp. Cath. Byp.
C56	.05	600		P688-05	DF-503	-TE6S5		TM-15	Video Coupling
C57	.05	600		P688-05	DF-503	PTE6S5		TM-15	Video Coupling
C58	.001	1000		P1088-001		PTE16D1		TR-21	Video Coupling
C59	.25	400		P488-25		GT4P25		TC-2	DC Res. Decoupling
C60	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	AGC Filter *
C61	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st S. IF Cath. Byp.
C62	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st S. IF Decoup.
C63	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	2nd S. IF Grid Filter
C64	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd S. IF Cath. Byp.
C65	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd S. IF Screen Byp.
C66	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd S. IF Plate Dec.
C67	51			GP51M	D6-500	5W5Q5	GP1K-50	1FM-45	Limiter Grid Filter
C68	6800			GP6800M	D6-682	1D3D7	GP2-334-B3B3	1FM-27	Limiter Decoup.
C69	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	RF Bypass
C70	.0025	400		P688-0022	D6-252	PTE6D2	GP2M-0025	TM-22	Audio Coupling
C71	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	Audio Coupling
C72	.005	400		P688-005	D6-502	PTE6S5	811-005	TM-25	Tone Comp.
C73	.002	400		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	De-emphasis *
C74	.005	400		P688-005	D6-502	PTE6S5	811-005	TM-25	Audio Coupling
C75	.005	600		P688-005	D6-502	PTE6S5	811-005	TM-25	Output Plate Byp.
C76	.05	400		P488-05	DF-503	PTE4S5		TM-15	Sync. Coupling
C77	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	1st Sync. Amp. Plate Byp.
C78	.1	400		P488-1	DF-104	PTE4P1		TM-1	1st Sync. Amp. Plate Dec.
C79	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Sync. Coupling
C80	.05	400		P488-05	DF-503	PTE4S5		TM-15	Sync. Coupling
C81	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	Vert. Sync. Coupling
C82	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Integrator Net.
C83	.0047	600		P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Integrator Net.
C84	.0047	600		P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Integrator Net.
C85	4700	500		1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C86	.05	600		P688-05	DF-503	PTE6S5		TM-15	Vert. Discharge
C87	.1	600		P488-1	DF-104	PTE4P1		TM-1	Vert. Sweep Coupling
C88	82	500		1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Hor. Sweep Coupling
C89	.015	400		P488-015		PTE6S15		MB-115	Fixed Trimmer
C90	.004	1000		P1088-004		PTE16D4		MB-24	AFC Filter
C91	.05	400		P488-05	DF-503	PTE4S5		TM-15	AFC Filter
C92	.05	600		P688-05	DF-503	PTE6S5		TM-15	Hor. AFC Screen Byp.
C93	.004	1000		P1088-004		PTE16D4		MB-24	Hor. AFC Coupling
C94	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	Phase Shifter
C95	.015	400		P488-015		PTE6S15		MB-115	Phase Shifter
C96	.004	600		P688-004	D6-402	PTE6D4		TM-24	Hor. Osc. Grid Cap.
C97	.05	600		P688-05	DF-503	PTE6S5		TM-15	Hor. Osc. Screen Byp.
C98	390	500		1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Differentiator Net.
C99	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	Hor. Sweep Coupling
C100	680	500			D6-681	1W5T7	GP2K-680	1FM-37	Hor. Discharge
C101	.001	1000		P1088-001		PTE16D1		TR-11	Hor. Sweep Coup.
C102	.1	600		P688-1	DF-104	PTE6P1		TM-1	Hor. Output Screen Byp.
C103	.1	400		P488-1	DF-104	PTE4P1		TM-1	Hor. Output Cath. Byp.
C104	.15	400		P488-15					Damper Filter
C105	06	400		P488-05		PTE4S5		TM-15	Damper Filter
C106	.35	400		P488-25		GT4PZ5		TC-2	Damper Filter
C107	4700	500		1467-005		1D5D5	GP2M-0047	1FM-25	Fixed Trimmer
C108	500	20000							Voltage Doubler Cap.
C109	500	20000							HV Filter
C110	500	20000							HV Filter
C111	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	Line Filter
C112	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	Line Filter

* Not used in all models.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA STARRETT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	10KΩ	1/2		Q11-116			Contrast control
B	1 Meg.	1/2			970111-7 †		Not used in set
C	Shaft			NQ #			Attach to R1A per instructions
R2A	1 Meg.	1/2		B11-137 *			Vert. hold control-front
B	50KΩ	1/2		B11-123 *	970111-8		Horiz. hold control-rear
C	Shaft End			E-187 *			Attach per instr. in "Concentrikit"
R2A	1 Meg.						Not used in set
B	50KΩ	1/2		Q11-123	970111-8 †		Brightness control
C	Shaft			NQ #			Attach to R3A per instructions
R4A	20KΩ	1/2		Q11-119	M-36-8	AN-22	Horiz. drive control
B	Shaft			Not Req.	Not Req.	AK-1	Attach to R4A per instructions
R5	500Ω	2		W-500	43-500	V-127	Horiz. linearity control-Wire Wound
R6A	2.5 Meg.	1/2		Q11-239	M-84-8	AN-83	Height control
B	Shaft			Not Req.	Not Req.	AK-1	Attach to R6A per instructions
R7A	500KΩ	1/2		Q11-114	M-19-8	AN-10	Vert. linearity control
B	Shaft			Not Req.	Not Req.	AK-1	Attach to R7A per instructions
R8	5000Ω	4			10-5000		Focus control-Wire Wound
R9	20Ω	2		W-20 x 10	43-20 CT	SVT-901	Vert. centering control-Wire Wound-tapped at 10Ω
R10	20Ω	2		W-20	43-20	V-110	Horiz. centering control-Wire Wound

* Additional parts to be used with "Concentrikit".
† Solder outer shaft to inner shaft, as only one section is used.
# Remove outer shaft of original control and saw off to desired length. Slip the outer shaft over the NQ shaft of new control and solder.

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA STARRETT PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R11	150Ω	1/2			RF Grid
R12	150Ω	1/2			RF Grid
R13	4700Ω 20%	1/2		BTS-4700	RF Plate
R14	4700Ω 20%	1/2		BTS-4700	RF Plate
R15	1000Ω 20%	1/2		BTS-1000	RF Decoupling
R16	1 Meg. 20%	1/2		BTS-1 Meg.	Mixer Grid
R17	10KΩ	1/2		BTS-10K	Mixer Grid Shunt
R18	10000Ω 20%	1/2		BTS-1000	Mixer Plate Decoupling
R19	100KΩ 20%	1/2			Osc. Grid
R20	100KΩ 20%	1/2			Osc. Grid

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA STARRETT PART No.	IRC PART No.	IDENTIFICATION CODES
R21	47Ω 20%	1/2			Osc. Cathode
R22	4700Ω 20%	1/2		BTS-4700	Osc. Plate
R23	150Ω	1/2			Decoupling Network
R24	1000Ω 20%	1/2		BTS-1000	AGC Network
R25	680KΩ	1/2		BTS-680K	Voltage Divider
R26	10KΩ 5%	1/2		BTS-10K-5%	1st Video IF Grid
R27	39Ω	1/2			1st Video IF Cathode
R28	1000Ω 20%	1/2		BTS-1000	1st Video IF Decoupling
R29	150Ω	1/2			Decoupling Network
R30	150Ω	1/2			Decoupling Network
R31	1000Ω 20%	1/2		BTS-1000	AGC Network
R32	1000Ω 20%	1/2		BTS-1000	AGC Network
R33	10KΩ 5%	1/2		BTS-10K-5%	2nd Video IF Grid
R34	39Ω	1/2			2nd Video IF Cathode
R35	1000Ω 20%	1/2		BTS-10K	2nd Video IF Decoupling
R36	150Ω	1/2			Decoupling Network
R37	4700Ω 5%	1/2		BTS-4700-5%	3rd Video IF Grid
R38	39Ω	1/2			3rd Video IF Cathode
R39	2700Ω 5%	1/2		BTS-2700-5%	3rd Video IF Plate
R40	1000Ω 20%	1/2		BTS-1000	3rd Video IF Decoupling
R41	150Ω	1/2			Decoupling Network
R42	150Ω	1/2			4th Video IF Cathode
R43	5600Ω 5%	1/2		BTS-5600-5%	4th Video IF Plate
R44	1000Ω	1/2		BTS-1000	4th Video IF Decoupling
R45	3900Ω 5%	1/2		BTS-3900-5%	Video Det. Diode Load
R46	10KΩ	1/2		BTS-10K	AGC Network
R47	100KΩ	1/2		BTS-100K	AGC Network
R48	1 Meg.	1/2		BTS-1 Meg.	AGC Network
R49	470KΩ	1/2		BTS-470K	Video Amp. Grid
R50	3300Ω	1/2		BTS-3300	Video Amp. Plate
R51	6800Ω	1/2		BTS-6800	Low Pass Filter
R52	1.2 Meg. 5%	1/2		BTS-1.2 Meg. 5%	Bias Network
R53	820KΩ 5%	1/2		BTS-820K-5%	Video Output Grid
R54	330Ω	1/2		BTA-330	Video Output Cathode
R55	3300Ω	1/2		BTA-3300	Video Output Plate
R56	10KΩ	1/2		BTS-10K	Isolation
R57	1 Meg.	1/2		BTS-1 Meg.	DC Rest. Load
R58	100KΩ	1/2		BTS-100K	Picture Tube Grid
R59	47KΩ	1/2		BTS-47K	Voltage Divider
R60	150KΩ	1/2		BTS-150K	Voltage Divider
R61	150KΩ	1/2		BTS-150K	Acc. Anode Load
R62	51KΩ	1/2			AGC Network
R63	27KΩ	1/2		BTS-27K	AGC Network
R64	5.6Ω	1		BW-1/2-5.6	Voltage Divider-Wire Wound
R65	5.6Ω	1		BW-1/2-5.6	Voltage Divider-Wire Wound
R66	6800Ω	1		BTA-6800	Bias Filter-See Note 1
R67	100Ω 20%	1			1st Sound IF Cathode
R68	1000Ω 20%	1/2		BTS-1000	1st Sound IF Decoupling
R69	470KΩ	1/2		BTS-470K	2nd Sound IF Grid
R70	100Ω 20%	1/2			2nd Sound IF Cathode
R71	3300Ω	1/2		BTS-3300	2nd Sound IF Screen
R72	1000Ω 20%	1/2		BTS-1000	2nd Sound IF Plate Decoupling
R73	22KΩ	1/2		BTS-22K	Limiter Grid
R74	10KΩ	1		BTA-10K	Limiter Decoupling
R75	10KΩ	1/2		BTS-10K	Voltage Divider
R76	2.2Ω	1		BW-1-2.2	Disc. Diode Filament-Wire Wound
R77	100KΩ	1/2		BTS-100K	Disc. Diode Load
R78	100KΩ	1/2		BTS-100K	Disc. Diode Load
R79	22KΩ	1/2		BTS-22K	De-emphasis
R80	82KΩ	1/2		BTS-82K	Tone Compensation
R81	10 Meg. 20%	1/2		BTS-10 Meg.	AF Amp. Grid
R82	330KΩ 20%	1/2		BTS-330K	AF Amp. Plate
R83	270KΩ	1/2		BTS-270K	Output Grid
R84	1000Ω	5		AB-1000	Output Decoupling-See Note 1
R85	6.8 Meg.	1/2		BTS-6.8 Meg.	Bias Network
R86	1 Meg.	1/2		BTS-1 Meg.	1st Sync. Amp. Grid
R87	4700Ω	1		BTA-4700	1st Sync. Amp. Plate
R88	4700Ω	1		BTA-4700	1st Sync. Amp. Plate Decoupling
R89	4.7 Meg.	1/2		BTS-4.7 Meg.	Bias Network
R90	1 Meg.	1/2		BTS-1 Meg.	Sync. Sep. Grid
R91	6800Ω	1/2		BTS-6800	Sync. Sep. Plate
R92	1 Meg.	1/2		BTS-1 Meg.	2nd Sync. Amp. Grid
R93	4700Ω	1/2		BTS-4700	2nd Sync. Amp. Plate
R94	1000Ω	1/2		BTS-1000	Decoupling
R95	22KΩ	1/2		BTS-22K	Voltage Divider
R96	22KΩ	1/2		BTS-22K	Integrator Network
R97	8200Ω	1/2		BTS-8200	Integrator Network
R98	8200Ω	1/2		BTS-8200	Integrator Network
R99	1.5 Meg. 5%	1/2		BTS-1.5 Meg. 5%	Vert. Osc. Grid
R100	220KΩ	1/2		BTS-220K	Vert. Osc. Plate
R101	2.2 Meg.	1/2		BTS-2.2 Meg.	Voltage Divider
R102	100KΩ	1/2		BTS-100K	Voltage Divider
R103	8200Ω 5%	1/2		BTS-8200-5%	Vert. Peaking
R104	1000Ω 20%	1/2		BTS-1000	Vert. Output Cathode
R105	2.2 Meg.	1/2		BTS-2.2 Meg.	Vert. Output Grid
R106	5000Ω	2			Vert. Output Decoupling
R107	470KΩ	1/2		BTS-470K	Horiz. Sync. Disc. Load
R108	470KΩ	1/2		BTS-470K	Horiz. Sync. Disc. Load
R109	1 Meg.	1/2		BTS-1 Meg.	Horiz. Sync. Disc. Load
R110	470KΩ	1/2		BTS-470K	Horiz. AFC Filter Network
R111	560Ω	1/2		BTS-560	Horiz. AFC Grid
R112	10Ω 5%	1/2			Horiz. AFC Cathode
R113	47KΩ 5%	1		BTA-47K-5%	Horiz. AFC Plate
R114	39KΩ 5%	1		BTA-39K-5%	Horiz. AFC Plate
R115	39KΩ	1		BTA-39K-5%	Horiz. AFC Screen
R116	27KΩ	1		BTA-27K	Voltage Divider
R117	27KΩ	1/2		BTS-27K	Horiz. Osc. Grid
R118	5000Ω	5		AB-5000	Horiz. Osc. Plate-Wire Wound
R119	10KΩ	1		BTA-10K	Horiz. Osc. Screen
R120	6800Ω	1/2		BTS-6800	Differentiator
R121	220KΩ 20%	1/2		BTS-220K	Horiz. Discharge Grid
R122	270KΩ	1/2		BTS-270K	Horiz. Discharge Plate
R123	4700Ω	1/2		BTS-4700	Horiz. Peaking
R124	100Ω 20%	1/2			Parasitic Supp.
R125	470KΩ	1/2		BTS-470K	Horiz. Output Grid
R126	100Ω	2		BW-2-100	Horiz. Output Cathode-Wire Wound
R127	1800Ω	1/2		BTS-1800	Horiz. Output Screen
R128	3.3Ω	1			HV Rect. Filament-Wire Wound

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA STARRETT PART No.	IRC PART No.	IDENTIFICATION CODES
R129	3.3Ω	1/2			HV Rect. Filament-Wire Wound
R130	470KΩ	1			HV Filter
R131	2 Meg. 15%	20			HV Rect. Load-Wire Wound
R132	270Ω	2		BW-2-270	Focus Coil Shunt-Wire Wound
R133	36000Ω 5%	1			Focus Coil Shunt
R134A	230Ω	10			Bias Network-Wire Wound
B	1360Ω	15			Filter-Wire Wound
R135A	93Ω	5			Bias Network-Wire Wound
B	12Ω	2			Bias Network-Wire Wound
C	6750Ω	5			Bleeder-Wire Wound
R136	56KΩ 20%	1/2		BTS-56K	Filter

Note 1. Some models use two resistors in parallel to obtain required resistance and wattage.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	REPLACEMENT DATA STARRETT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 2.58A	750VCT .315ADC	5VAC @ 6A	5VAC @ 2A	12.6VCT @ 5A		P-8156	P-3061	TP-365

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA STARRETT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	170Ω	1300Ω		A-8121	A-4000	TBO-1	Vert. Block Osc. Trans.
T3	115Ω Tap @ 75Ω	10.6Ω Tap @ .6Ω SEC. 2 0Ω SEC. 3 0Ω		A-8119	HVO-5	TFB-4	Horiz. Output Trans.
T4	590Ω	6.9Ω		A-8115	A-3035	TSO-1	Vert. Output Trans.
T5A	14Ω			DY-1	MD-3		Horiz. Deflection Coil
B	62Ω						Vert. Deflection Coil
T6	455Ω				MF-2		Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA STARRETT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	6.3KΩ	4Ω	470Ω	.3Ω		A-8114	A-2931	RO-11	

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA STARRETT PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	1000Ω	8.6Ω				
	CONE DIA.	V. C. DIA.				
SP2	11 1/2"	1 3/4"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA STARRETT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.315A	52Ω	1.8 Henries		C-2326	C-2996	TR-3300②②	②② Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA STARRETT PART No.	MEISSNER PART No.	NOTES
L2	Ant. Trans.	0Ω				
L3	Interference Trap	0Ω				
L4	Interference Trap	0Ω				
L5	Fil. Choke	0Ω				
L6	Mixer Grid	0Ω				
L7	1st Video IF -Sound Take Off	.2Ω	0Ω			
L8	Fil. Choke	0Ω				
L9	2nd Video IF	.2Ω	0Ω			
L10	3rd Video IF	.2Ω	.1Ω			
L11	Fil. Choke	0Ω				
L12	Fil. Choke	0Ω				
L13	4th Video IF	.2Ω				
L14	Sound Trap	.1Ω	.1Ω			
L15	Fil. Choke	0Ω				
L16	5th Video IF	.2Ω				
L17	Fil. Choke	0Ω				
L18	Peaking	5.5Ω			19-1921 †	Wound on 22KΩ resistor 120uuh
L19	Peaking	9Ω			19-1922	250uuh
L20	Peaking	5.5Ω			19-1921 †	Wound on 22KΩ resistor 120uuh
L21	Peaking	5Ω			19-1920	93uuh
L22	Peaking	6Ω			19-1921 †	Wound on 22KΩ resistor 120uuh
L23	Peaking	5Ω			19-1920	93uuh
L24	1st Sound IF	.2Ω	.2Ω			
L25	2nd Sound IF	.2Ω	.2Ω			
L26	Disc. Trans.	.2Ω	.2Ω			

TV **PARTS LIST AND DESCRIPTIONS (Continued)**

COILS (RF-IF) CONT.

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA STARRETT PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L27	Horiz. Sync. Disc. Trans.	44Ω	40Ω			
L28	Width Cont.	.5Ω				
L29	Horiz. Lin.	9Ω				

† Add 22KΩ resistor in parallel.

MISCELLANEOUS

ITEM No.	PART NAME	STARRETT PART No.	NOTES
M1	RF Tuner		
M2	Fuse		Type 3AG .25A

RADIO **PARTS LIST AND DESCRIPTIONS**

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA STARRETT PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V32A	FM RF Amp.	6BA6	6BA6	7BK	
B	FM RF Amp.	6AG5	6AG5	7BD	
V33	FM Converter	6BE6	6BE6	7CH	
V34	AM Converter	6BE6	6BE6	7CH	
V35	1st IF Amp.	6BA6	6BA6	7BK	
V36	FM 2nd IF Amp.	6AU6	6AU6	7BK	
V37	Ratio Det.	6AL5	6AL5	6BT	
V38	Tuning Indicator	6U5	6U5	6R	
V39	DET.-AVC-AF	6SQ7	6SQ7	8Q	
V40	AF Amp.	6J5	6J5	6Q	
V41	Phase Inv.	6J5	6J5	6Q	
V42	Audio Output	6V6GT	6V6GT	7AC	
V43	Audio Output	6V6GT	6V6GT	7AC	
V44	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA STARRETT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C113	20	450		PRS450/20		BR2045A		UT-20	Filter
C114A	30	450		AF666J		UP9CJ390		EL-300	▰ Filter
B	30	450							■ Filter
C	30	450							▲ Filter
C115	50	50		PRS50/50		BR505		TVA-16	AF Amp.-Phase Inv. Cath. Byp.
C116	20	450		PRS450/20		BR2045A		UT-20	AF Amp. Plate Decoup.
C117	5	50		PRS150/4		BR550		TVA-13	Stabilizing Cap.
C118	500			GP500M	D6-501	5W5T5	GP2K-500	1FM-35	FM RF Amp. Cath. Byp.
C119	500			GP500M	D6-501	5W5T5	GP2K-500	1FM-35	FM RF Amp. Decoup.
C120	10			GP10K	D6-100	5W5Q1	GP1K-10	MS-41	RF Coupling
C121	4			CN4CNPO	TCZ-3.3		NPOK-3.3		Fixed Trimmer
C122	27			GP27M	D6-270	5W5Q25	GP1K-27	MS-425	Osc. Grid Cap.
C123	50	500		1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	FM Conv. Fil. Bypass
C124	330	500		1468-00035	D6-331	5W5T35	GP2K-330	1FM-335	FM Conv. Anode Bypass
C125	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	FM Conv. Decoup.
C126	120			GP120M	D6-121	5W5T15	GP2K-120	1FM-315	RF Coupling
C127	56			GP51M	D6-600	5W5Q5	GP1K-56	1FM-45	Osc. Grid Cap.
C128	390	500		1469-0004		5R5T4		1FM-34	Fixed Padder
C129	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	AM Osc. Anode Byp.
C130	.05	400		P488-05	DF-503	PTE4S5		TM-15	AVC Filter
C131	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	1st IF Screen Byp.
C132	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	1st IF Decoup.
C133	100			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C134	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	2nd IF Screen Byp.
C135	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	2nd IF Cath. Byp.
C136	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	2nd IF Plate Dec.
C137	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	Diode Load Cap. †
C138	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	Diode Load Cap. †
C139	120			GP120M	D6-121	5W5T15	GP2K-120	1FM-315	RF Bypass
C140	.1	400		P488-1	DF-104	PTE4P1		TM-1	Tuning Ind. Filter
C141	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	De-emphasis
C142	.0025	600		P688-0022	D6-252	PTE6D2	GP2M-0025	TM-22	Audio Coupling
C143	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	Audio Coupling
C144	.05	400		P488-05	DF-503	PTE4S5		TM-15	Audio Coupling
C145	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	Tone Comp.
C146	.01	400		P488-01	D6-103	PTE4S1	821-01	TM-11	RF Bypass
C147	.05	400		P488-05	DF-503	PTE4S5		TM-15	Audio Coupling
C148	.05	400		P488-05	DF-503	PTE4S5		TM-15	Audio Coupling
C149	.01	600		P688-01	D6-103	PTE6S1	821-01	TM-11	Audio Coupling
C150	.05	400		P488-05	DF-503	PTE4S5		TM-15	Audio Coupling
C151	.1	400		P488-1	DF-104	PTE4P1		TM-1	Line Filter
C152	.01	600		P688-01	D6-103	PTE6S1	821-01	TM-11	Line Filter
C153	.01	600		P688-01	D6-103	PTE6S1	821-01	TM-11	Line Filter

† When either item C137 or C138 are replaced, replace both with capacitors of equal value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA STARRETT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R137	2 Meg.			Q11-139	M-83-S	B-75	Volume control
R138A	500KΩ			Q11-133	M-58-S	B-59-S	Tone control
B	Switch			76-1	SW-A6	Not Req.	Attach to R138A per instructions

RADIO **PARTS LIST AND DESCRIPTIONS (Continued)**

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STARRETT PART No.	IRC PART No.	
R139	330Ω	½			FM RF Grid
R140	82Ω	½			FM RF Cathode
R141	10KΩ	1		BTA-10K	FM RF Decoupling
R142	10KΩ	1		BTA-10K	FM RF Decoupling
R143	20KΩ	½		BTS-22K	FM Osc. Grid
R144	10KΩ	½		BTS-10K	FM Osc. Anode
R145	1000Ω	½		BTS-1000	FM Conv. Decoupling
R146	1 Meg.	½		BTS-1 Meg.	Ant. Isolation
R147	2 Meg.	½		BTS-2.2 Meg.	AM Conv. Grid
R148	22KΩ	½		BTS-22K	AM Osc. Grid
R149	2200Ω	½		BTS-2200	AM Osc. Anode
R150	47Ω	½			1st IF Cathode
R151	2200Ω	½		BTS-2200	1st IF Screen
R152	1500Ω	1		BTA-1500	1st IF Decoupling
R153	20 Meg.	½		BTS-22 Meg.	Delayed AVC
R154	47KΩ	½		BTS-47K	Diode Filter
R155	470KΩ	½		BTS-470K	Diode Load
R156	470KΩ	½		BTS-470K	Diode Load
R157	2 Meg.	½		BTS-2.2 Meg.	AVC Network
R158	100Ω	½			2nd FM IF Cathode
R159	2200Ω	½		BTS-2200	2nd FM IF Screen
R160	1000Ω	½		BTS-1000	2nd FM IF Plate Decoupling
R161	15KΩ	½		BTS-15K	De-emphasis
R162	22KΩ	½		BTS-22K	Ratio Det. Diode Load
R163	2 Meg.	½		BTS-2.2 Meg.	AVC Network
R164	2.2 Meg.	½		BTS-2.2 Meg.	Tuning Ind. Network
R165	1 Meg.	1		BTA-1 Meg.	Tuning Ind. Grid
R166	1 Meg.	½		BTS-1 Meg.	Tuning Ind. Plate
R167	470KΩ	½		BTS-470K	Phono Input Shunt
R168	10 Meg.	½		BTS-10 Meg.	AF Amp. Grid
R169	30KΩ	½		BTS-33K	AF Amp. Plate
R170	10KΩ	1		BTA-10K	AF Amp. Plate Decoupling
R171	220KΩ	½		BTS-220K	AF Amp. Grid
R172	4700Ω	½		BTS-4700	AF Amp. Cathode
R173	100KΩ	½		BTS-100K	AF Amp. Plate
R174	4700Ω	½		BTS-4700	Phase Inv. Cathode
R175	240KΩ	½		BTS-220K	Phase Inv. Grid
R176	100KΩ	½		BTS-100K	Phase Inv. Plate
R177	240KΩ	½		BTS-220K	Output Grid
R178	240KΩ	½		BTS-220K	Output Grid
R179	240KΩ	½		BTS-220K	Output Grid
R180	250Ω	2		BW-2-270	Output Cathode
R181	3000Ω	10		AB-3000	Filter-Wire Wound

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	STARRETT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T8	117VAC @ 1.01A	690VCT .117ADC	5VAC @ 3A	6.3VAC @ 4.3A		P-4080 ①	P-3153 ①	PV-120A

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		STARRETT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T9	8.6KΩ CT	8.6Ω	395Ω CT	.4Ω		A-3880	A-2905	RO-304 ②	② Drill one new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	STARRETT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L30	.052A	245Ω	6 Henries		C-1325 ①	C-2975 ①	R-650 ①	① Drill new mounting holes.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	STARRETT PART No.	MEISSNER PART No.	
L31	FM RF Plate Choke	0Ω				
L32	FM RF	0Ω				
L33	FM Osc.	.3Ω				
L34	Loop Ant.					
L35	AM Osc.	4.5Ω				
L36	1st FM IF	.5Ω	.3Ω			
L37	1st AM IF	11.5Ω	11.5Ω		16-6666	
L38	2nd FM IF	1Ω	.5Ω			
L39	2nd AM IF	12Ω	11Ω		16-6667	
L40	3rd FM IF	.5Ω	.3Ω			
L41	Ratio Det. Trans.	.3Ω				
L42	Fil. Choke	0Ω				

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					STARRETT PART No.		
M3	Bayonet	6-8	.25	Blue			Type #44 Radio dial light
M4	Bayonet	6-8	.25	Blue			Type #44 Radio dial light

MISCELLANEOUS

ITEM No.	PART NAME	STARRETT PART No.	NOTES
M5	Tuning Cap.		
M6	Selector Switch		

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

While receiving a television signal turn the horizontal hold control fully counter-clockwise. Remove the picture momentarily by turning the contrast control fully counter-clockwise and then return it to its normal operating position. The picture should pull back into synchronization.

Now turn the horizontal hold control fully clockwise. Remove the picture momentarily by turning the contrast control fully counter-clockwise and then return to its normal operating position. The picture should pull back into synchronization.

If receiver synchronizes properly under these checks it is not necessary to align the horizontal oscillator. However, if the picture is not normal or stable, the horizontal oscillator must be aligned.

SLIGHT RETOUCH ALIGNMENT

If the receiver failed in the above check at either extreme of the hold control, it may be possible to align the horizontal oscillator by making slight adjustments.

Tune in a TV station and adjust fine tuning for best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast control to slightly less than normal. Turn the horizontal hold control to the extreme position in which the oscillator falls out of synchronization. Momentarily remove the signal. Adjust B2 (rear of chassis) until the oscillator pulls into synchronization. Check hold and pull-in as outlined above.

COMPLETE ALIGNMENT

Tune in a TV station for the best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast control to slightly less than normal.

Adjust B1 until the blanking bar, which may appear in the picture, moves to the right and off the raster. If ripples occur in the raster turn B1 in a clockwise direction until the unstable condition is removed. The length of this adjustment screw in its correct position is usually about 1/2 inch beyond the bushing.

Turn horizontal hold control fully counter-clockwise and adjust B2 clockwise until picture fails to synchronize. Now slowly turn B2 counter-clockwise to the point where the picture synchronizes. Readjust B1 so that the left side of the picture is close to the left side of the raster but does not fold over.

Turn the horizontal hold control fully clockwise. The right side of the picture should be close to the right side of the raster, but should not fold over. If it does, readjust B1.

Momentarily remove the signal. When signal is restored, the picture should fall into synchronization. If it does not, turn B2 counter-clockwise until picture falls into synchronization.

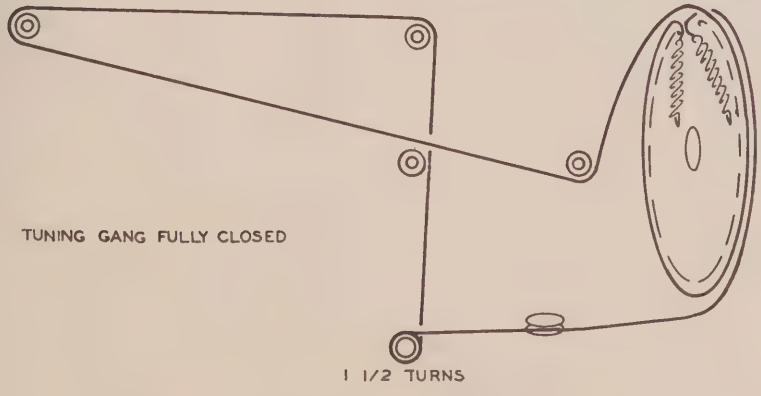
Turn horizontal hold control fully counter-clockwise. Picture should fall back into synchronization after momentary removal of the signal.

If picture fails to synchronize after momentary removal of the signal at both extremes of the horizontal hold control, there may be insufficient pull-in range. However, if picture will pull in through 3/4 of the hold control range, operation should be satisfactory as excessiver pull-in is objectionable. Excessiver pull-in makes the control circuits more sensitive which may result in their being triggered by noise pulses. Also the vertical synchronizing and equalizing pulses may cause a bend in the upper part of the picture.

HORIZONTAL LINEARITY ADJUSTMENTS

Adjust the horizontal drive control clockwise as far as possible without crowding the right half of the picture.

Adjust the width slug (B3) until the picture is of proper size horizontally. Adjust the horizontal linearity slug (B4) and the horizontal linearity control until the picture is symmetrical from left to right.



RADIO DIAL CORD STRINGING

PHOTOFACT* Folder

*TRADE MARK

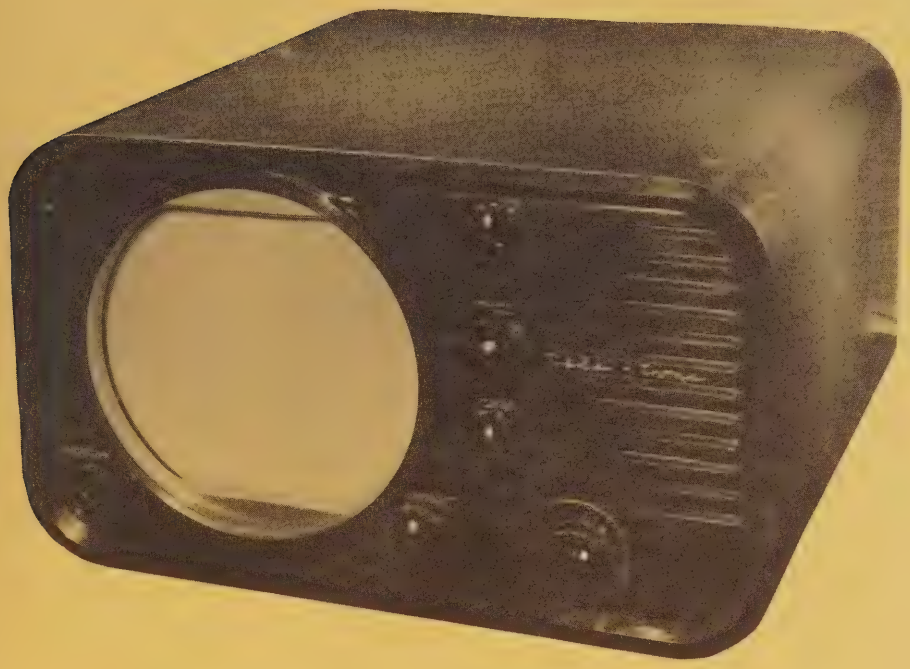
TELE-TONE MODELS

TV-255, TV-256 (CH. TS)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL TV-255

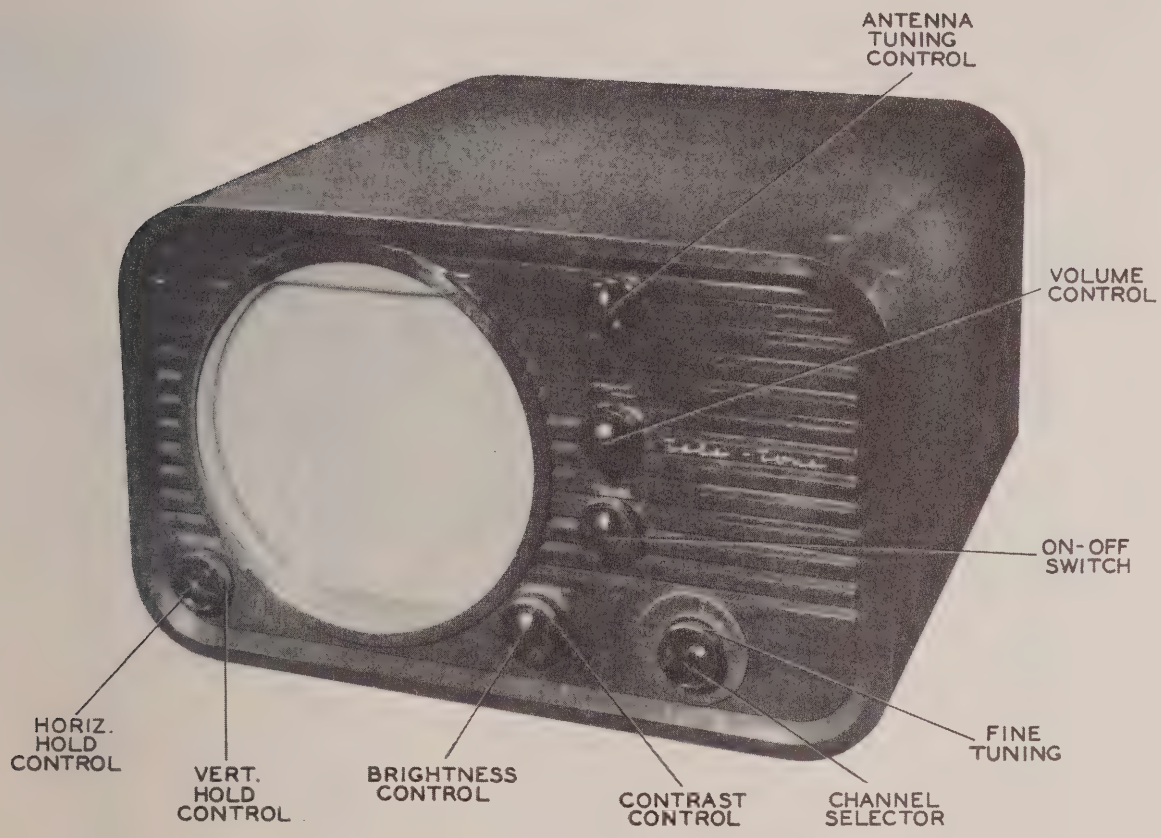
TELE-TONE MODELS

TV-255, TV-256 (CH. TS)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Date 7/50 Set No. 101—Folder No. 13



TELE-TONE
MODELS TV-255, TV-256 (Ch. TS)

TELE-TONE MODEL TV-255

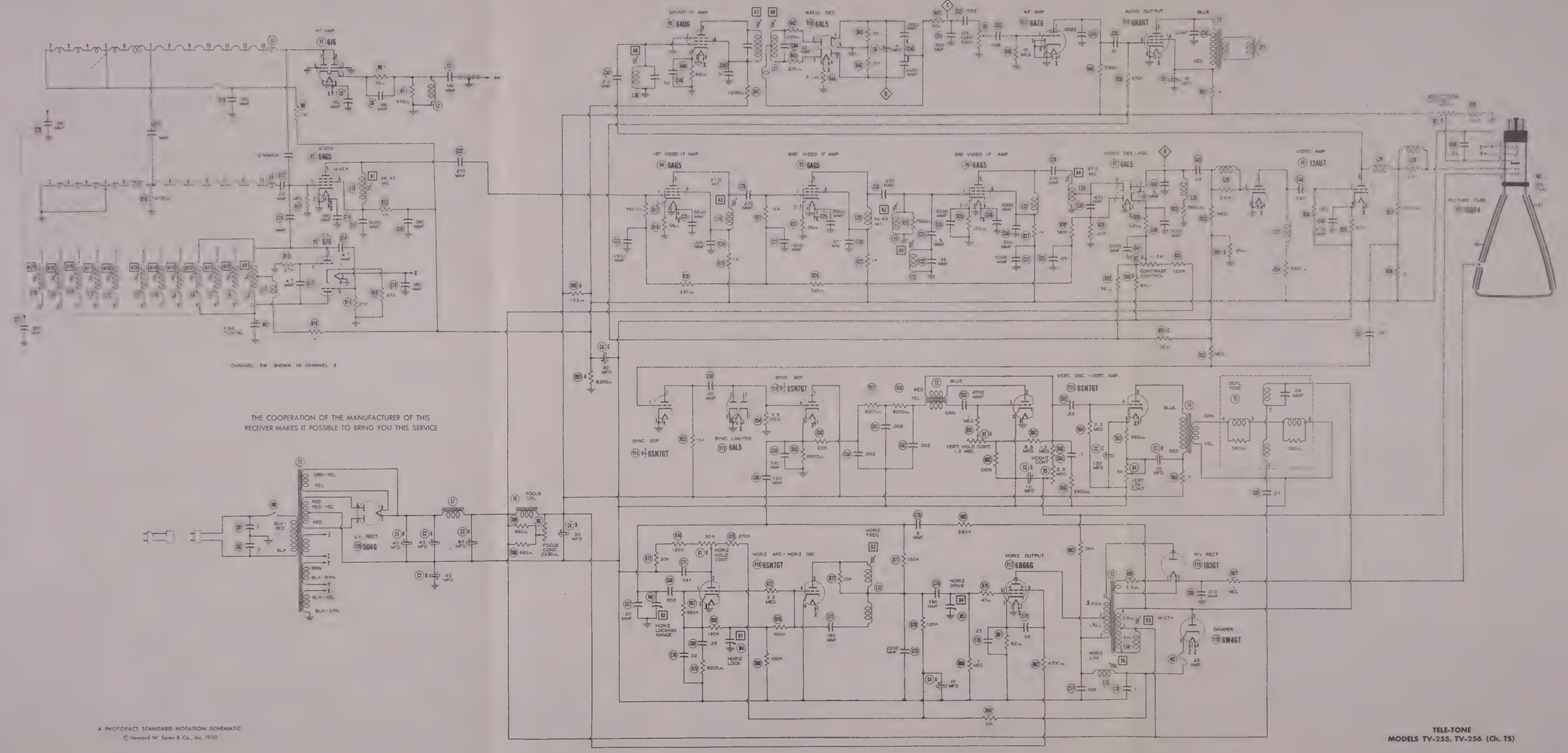
TRADE NAME	Tele-Tone, Models TV-255, TV-256 (Ch. TS)
MANUFACTURER	Tele-Tone Radio Corp., 540 West 58th St., New York 19, New York
TYPE SET	Television Receiver
TUBES	Twenty One
POWER SUPPLY	105-125 Volts AC - 60 Cycle — RATING 2.1 Amp. at 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

INDEX

Alignment Instructions 6
Disassembly Instructions 13
Fine Tuning Drive Cord Stringing 13
Horizontal Sweep Circuit Adjustment 10
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 10
Capacitor Identification 11, 18
Photographs (continued)
Chassis-Top View 3, 13
RF Tuner 7
Resistor Identification 12, 17
Trans., Inductor and Alignment Identification 4, 9
Schematic 2
Tube Placement Chart 5
Voltage and Resistance Measurements 8

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

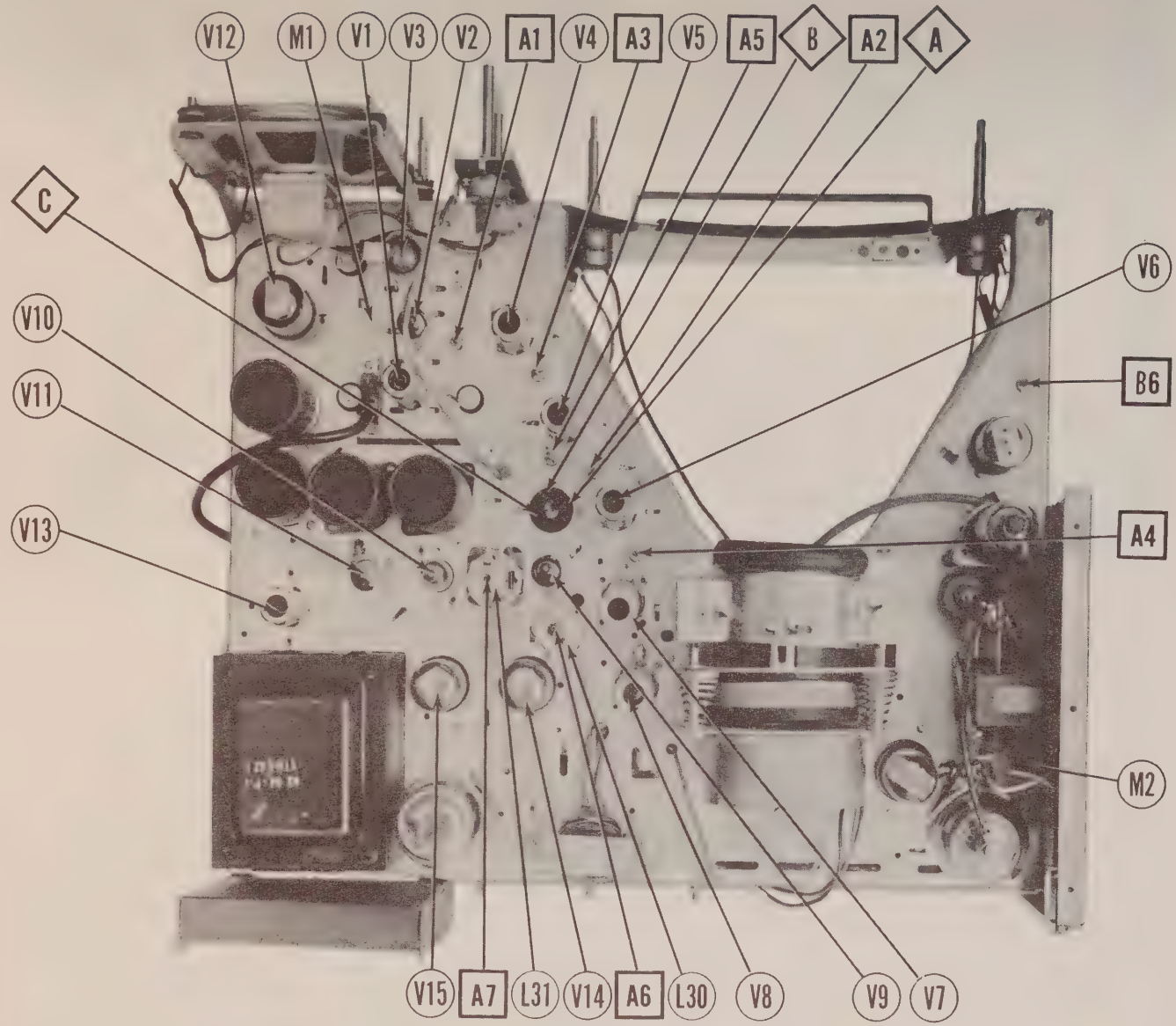
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



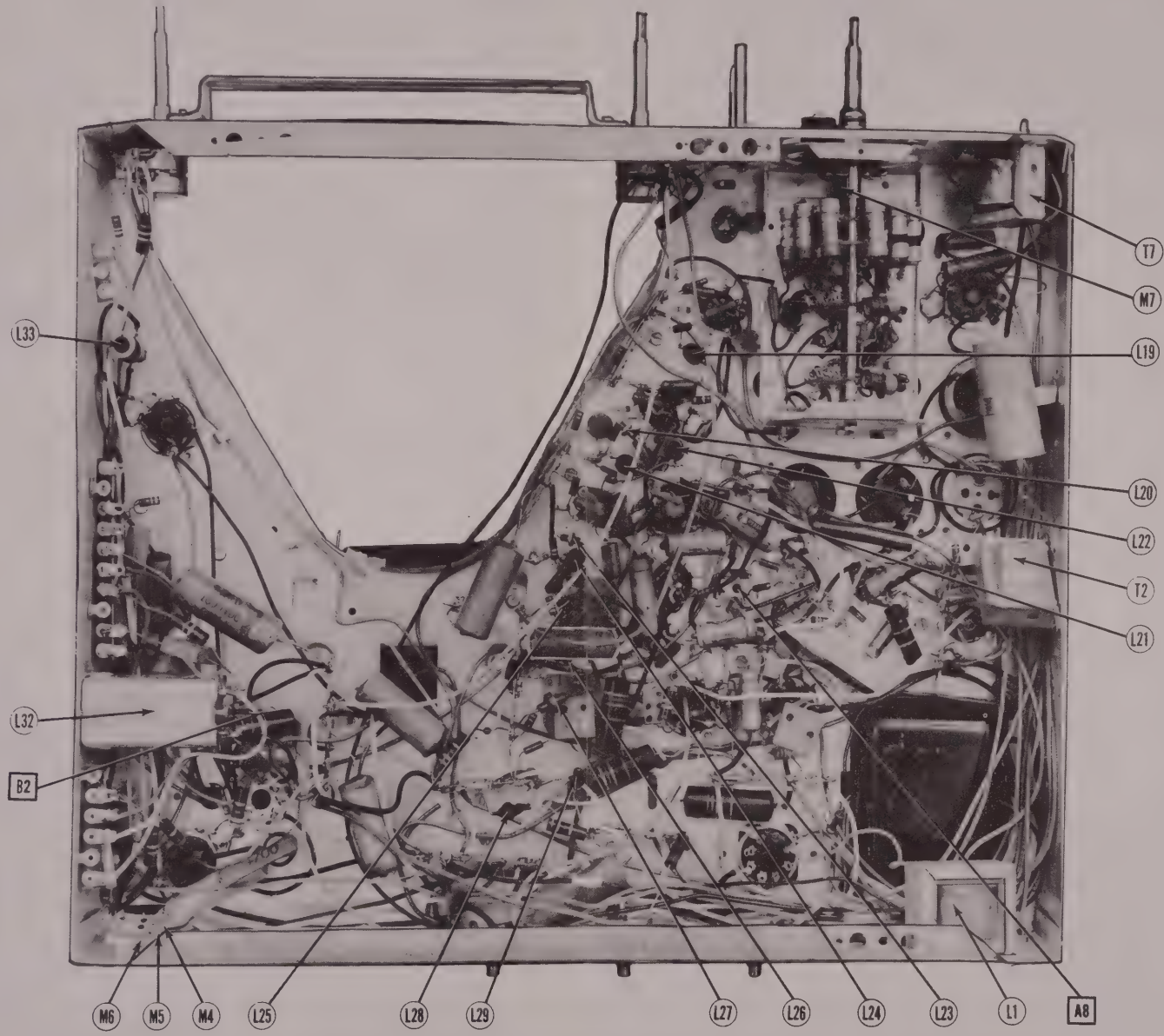
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1950

TELE-TONE
MODELS TV-255, TV-256 (Ch. TS)

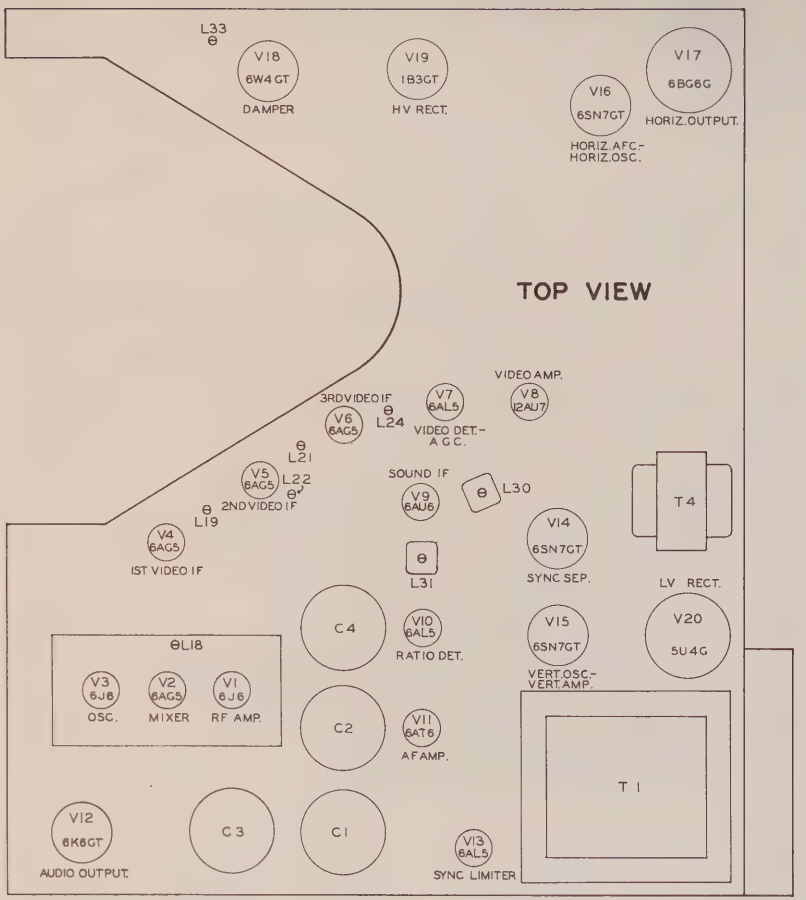
TELE-TONE
MODELS TV-255, TV-256 (Ch. TS)

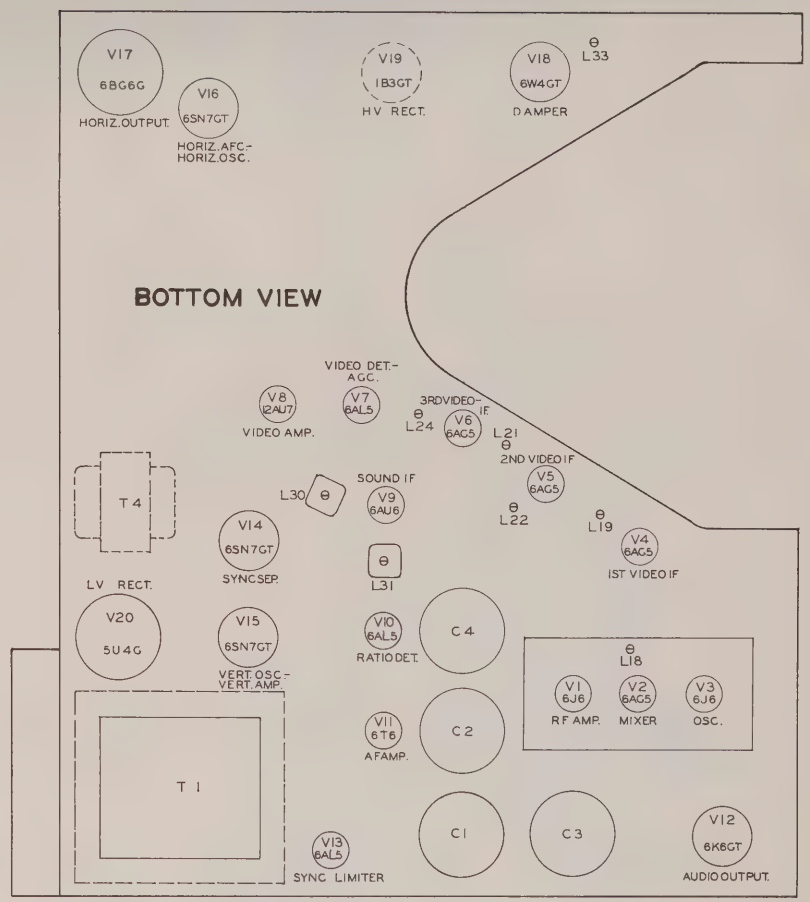


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

TELE-TONE
MODELS TV-255, TV-256 (Ch. TS)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V16) from its socket.

VIDEO IF ALIGNMENT

Set the contrast control to read -2 volts on a VTVM connected between pin 7 of V7 and chassis.
Attenuate the signal generator to maintain a reading of 1.5 volts.
Remove the local oscillator tube (V3) from its socket to prevent erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	34.45MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	Direct	"	37MC	"	"	A3, A4	"
3.	Direct	"	32.8MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	35MC (10MC SWP)	32.8MC 34.45MC 37.0MC 37.3MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to pin 7 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (B). Common to chassis.	A6, A7	Adjust for maximum deflection.
6.	.01MFD	"	"	"	DC Probe to Point (C). Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 7 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (B). Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C6. Adjust for maximum amplitude and symmetry as per figure 2. Then reconnect C6.
6.	.01MFD	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A8	Adjust A8 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Keep the output of the sweep generator as low as possible to prevent overloading.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to ungrounded antenna terminal. Low side to chassis.	57MC (10MC SWP)	55.25MC 59.75MC	2	Vert. Amp. to Point (A). Low side to chassis.	A9	Adjust to place sound marker as shown in figure 4. The video marker should fall between 45% and 60%. If the video carrier does not fall between 45% and 60% on all channels. Turn to channel 6 and retouch the video IF coils (A1 thru A4).
			63MC (10MC SWP)	61.25MC 65.75MC	3		A10	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A11	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A12	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A13	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A14	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A15	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A16	
			195MC (10MC SWP)	193.25MC 195.75MC	10		A17	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A18	
			207MC (10MC SWP)	205.25MC 209.75MC	12		A19	
			213MC (10MC SWP)	211.25MC 215.75MC	13		A20	

THE RF AND MIXER PORTIONS OF THIS RECEIVER HAVE BEEN PRE-SET AT THE FACTORY AND ARE NORMALLY VERY STABLE. THEY SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

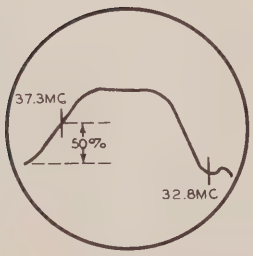


FIG. 1

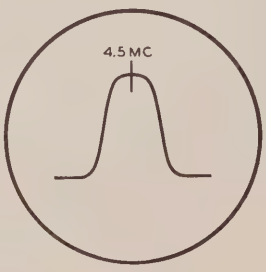


FIG. 2

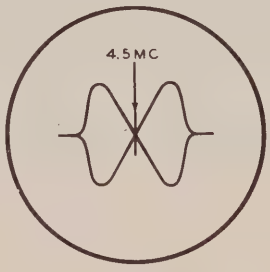


FIG. 3

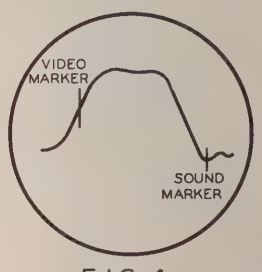
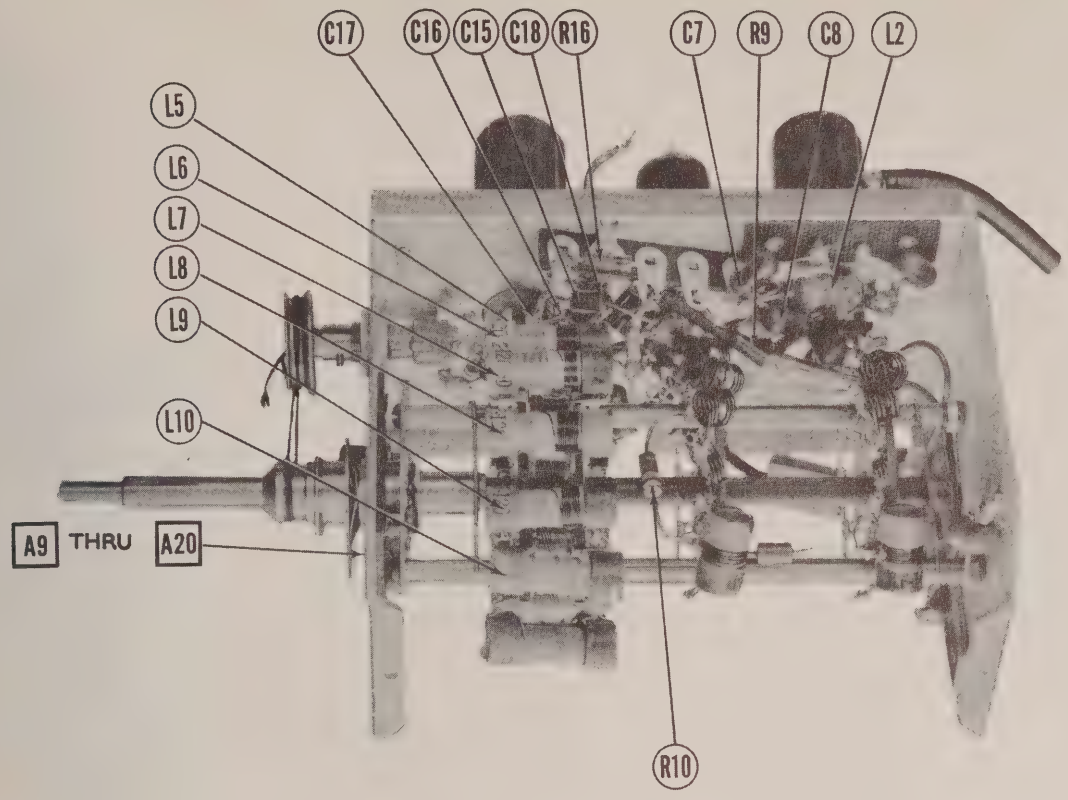
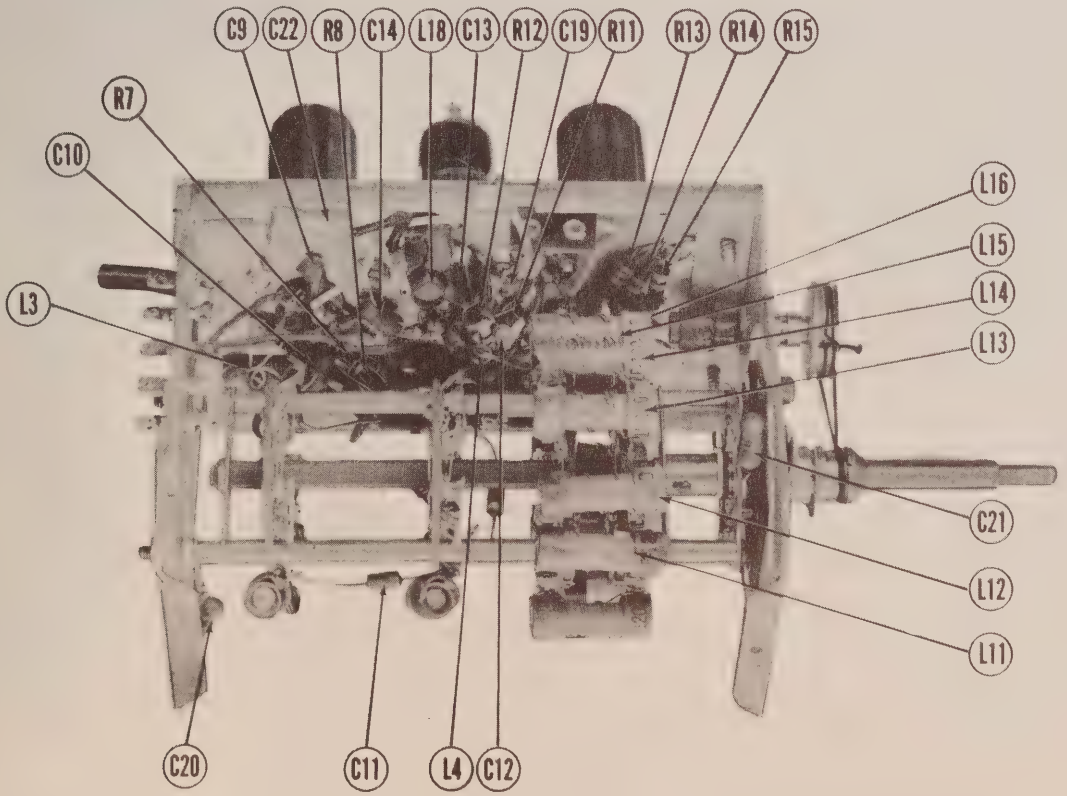


FIG. 4



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	150VDC	150VDC	6.3VAC	0V.	0V.	0V.	0V.		
V 2	6AG5	-3.4VDC	0V.	6.3VAC	0V.	125VDC	125VDC	0V.		
V 3	6J6	115VDC	115VDC	6.3VAC	0V.	§-1.1VDC	§-3.4VDC	.4VDC		
V 4	6AG5	-5.3VDC	0V	0V.	6.3VAC	130VDC	130VDC	0V.		
V 5	6AG5	-5.3VDC	0V.	6.3VAC	0V.	130VDC	130VDC	0V.		
V 6	6AG5	0V.	1.2VDC	0V.	6.3VAC	120VDC	120VDC	1.2VDC		
V 7	6AL5	-20VDC	-.1VDC	6.3VAC	0V	0V.	0V.	-20VDC		
V 8	12AU7	115VDC	-.7VDC	0V.	6.3VAC	6.3VAC	60VDC	-90VDC	-90VDC	0V.
V 9	6AU6	0V.	0V.	0V.	6.3VAC	115VDC	115VDC	.8VDC		
V 10	6AL5	0V.	0V.	1.2VAC	6.3VAC	-.1VDC	0V.	-.1VDC		
V 11	6AT6	-.4VDC	0V.	0V.	6.3VAC	0V.	0V.	70VDC		
V 12	6K6GT	245VDC	0V.	205VDC	215VDC	-5.5VDC	-16VDC	6.3VAC	0V.	
V 13	6AL5	0V.	-.5VDC	6.3VAC	0V	0V.	0V.	0V.		
V 14	6SN7GT	-.6VDC	145VDC	0V.	-.5VDC	245VDC	11VDC	6.3VAC	0V.	
V 15	6SN7GT	-95VDC	60VDC -.4VDC	-90VDC	-60VDC	235VDC	75VDC 80VDC	6.3VAC	0V.	
V 16	6SN7GT	-85VDC	15VDC	-95VDC	-140VDC	65VDC	-95VDC	6.3VAC	0V:	
V 17	6BG6G	0V.	6.3VAC	-90VDC	0V.	-95VDC	0V.	0V	195VDC	TOP CAP *
V 18	6W4GT	0V.	0V.	345VDC	0V.	275VDC	0V.	¶	¶	
V 19	1B3GT	* DO NOT MEASURE.								
V 20	5U4G	0V.	290VDC	0V.	380VAC	0V.	380VAC	0V.	290VDC	
V 21	10BP4	¶	65VDC	PIN 10 340VDC	PIN 11 255VDC	PIN 12 ¶				

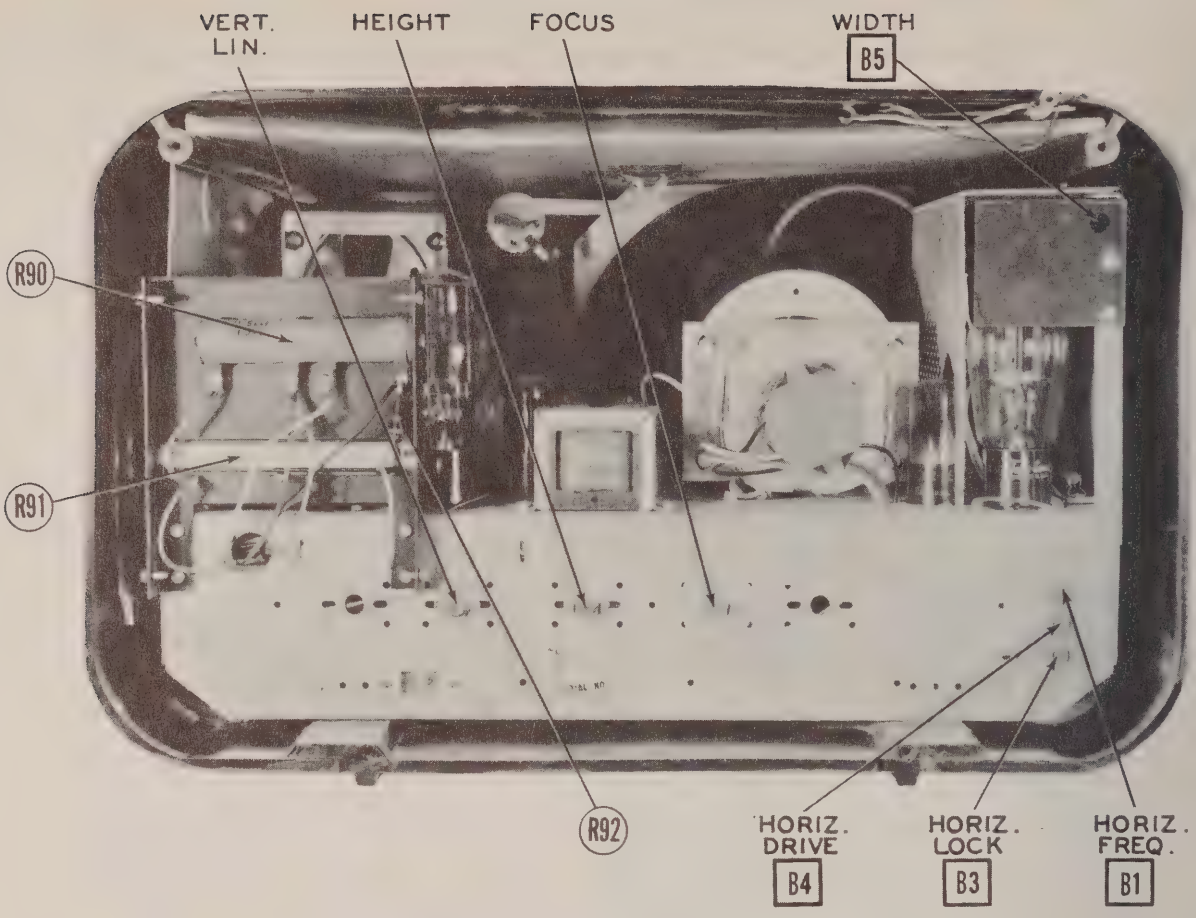
FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION.
* DO NOT MEASURE.
§ TAKEN WITH VACUUM TUBE VOLTMETER.
¶ 6.3 VAC MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†2.8KΩ	†2.8KΩ	.1Ω	0Ω	0Ω	0Ω	56Ω		
V 2	6AG5	1 Meg.	0Ω	.1Ω	0Ω	†2.3KΩ	†2.3KΩ	0Ω		
V 3	6J6	†2.3KΩ	†2.3KΩ	.1Ω	0Ω	27KΩ	27KΩ	47Ω		
V 4	6AG5	685KΩ	39Ω	0Ω	.1Ω	†2.3KΩ	†2.3KΩ	39Ω		
V 5	6AG5	695KΩ	39Ω	.1Ω	0Ω	†2.3KΩ	†2.3KΩ	39Ω		
V 6	6AG5	.1Ω	100Ω	0Ω	.1Ω	†2.3KΩ	†2.3KΩ	100Ω		
V 7	6AL5	1.6KΩ	5.6KΩ	.1Ω	0Ω	0Ω	0Ω	120KΩ		
V 8	12AU7	†4.7KΩ	1 Meg.	0Ω	.1Ω	.1Ω	†5.6KΩ	1 Meg.	830Ω	0Ω
V 9	6AU6	1.4Ω	0Ω	0Ω	.1Ω	†2.9KΩ	†2.9KΩ	82Ω		
V 10	6AL5	15KΩ	15KΩ	2.1Ω	.1Ω	Inf.	0Ω	Inf.		
V 11	6AT6	10 Meg.	0Ω	0Ω	.1Ω	0Ω	0Ω	†330KΩ		
V 12	6K6GT	†200Ω	0Ω	†1.6KΩ	†1.2KΩ	470KΩ	140Ω	.1Ω	0Ω	
V 13	6AL5	Inf.	3.9 Meg.	.1Ω	0Ω	0Ω	0Ω	Inf.		
V 14	6SN7GT	1 Meg.	†15KΩ	0Ω	3.9 Meg.	†210Ω	6.8 KΩ	.1Ω	0Ω	
V 15	6SN7GT	2 Meg.	#1. 5 Meg. #3 Meg.	780Ω	2.2 Meg.	†1.8KΩ	6.3KΩ 1.3KΩ	.1Ω	0Ω	
V 16	6SN7GT	750KΩ	150KΩ	280KΩ	200KΩ	#130KΩ	780Ω	.1Ω	0Ω	
V 17	6BG6G	Inf.	.1Ω	860Ω	Inf.	1 Meg.	Inf.	0Ω	†4.9KΩ	TOP CAP #225Ω
V 18	6W4GT	Inf,	Inf.	#0Ω	Inf.	†60Ω	Inf.	Inf.	Inf.	
V 19	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #400Ω
V 20	5U4G	Inf.	10KΩ	Inf.	800Ω	Inf.	800Ω	Inf.	10KΩ	
V 21	10BP4	8.2KΩ	†5.6KΩ	PIN 10 #56KΩ	PIN 11 9KΩ	PIN 12 8.2KΩ				

FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION.
† MEASURED FROM PIN 2 OF V20.
# MEASURED FROM PIN 3 OF V18.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



CABINET- REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

Tune in a test pattern and turn the horizontal hold control to maximum counter-clockwise, the picture should remain in synchronization. Momentarily interrupt the signal by switching to another channel and back again, the picture should now be out of synchronization. Turn the hold control slowly clockwise. The picture should pull into synchronization after approximately 90° of rotation, and should remain in synchronization for an additional 90° of clockwise rotation. At the extreme clockwise position the picture should be out of synchronization and should show 3 1/2 to 4 1/2 bars sloping downward to the right. If the receiver fails to hold synchronization with the hold control in the extreme counter-clockwise position, or fails to hold after at least 60° clockwise rotation from the pull in point, it will be necessary to align the horizontal oscillator as follows:

(A) HORIZONTAL OSCILLATOR ALIGNMENT

Turn the horizontal hold control to maximum clockwise. Adjust the horizontal frequency trimmer (B1) until the picture is out of synchronization and shows 3 1/2 to 4 1/2 bars sloping downward to the right. If the trimmer has insufficient range, set it to the mid-position of its range (1 revolution counter-clockwise from tight), and adjust the horizontal frequency slug (B2) until the proper number of bars are present.

(B) HORIZONTAL LOCKING ALIGNMENT

Turn the hold control to maximum counter-clockwise. Momentarily interrupt the signal by switching to another channel and back again.

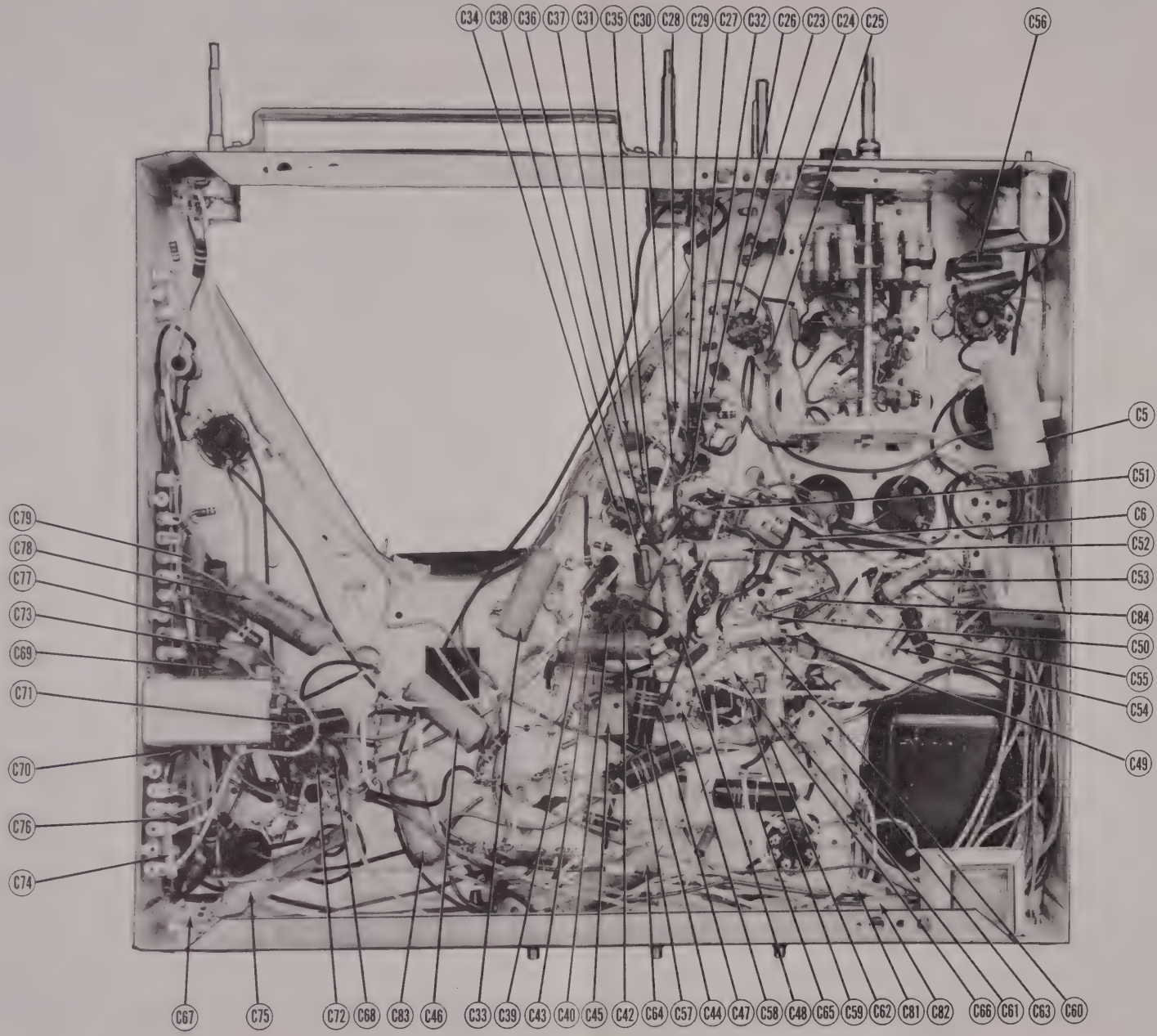
Slowly turn the hold control clockwise and carefully note the least number of diagonal bars present just before the picture pulls out of synchronization. If less than 3 1/2 bars are present turn the horizontal lock trimmer (B3) slightly counter-clockwise, if more than 4 1/2 bars are present at the pull in point turn B3 slightly clockwise. Repeat the above procedure until 3 1/2 to 4 1/2 bars are present just before pull in.

WIDTH, DRIVE, AND LINEARITY ADJUSTMENTS

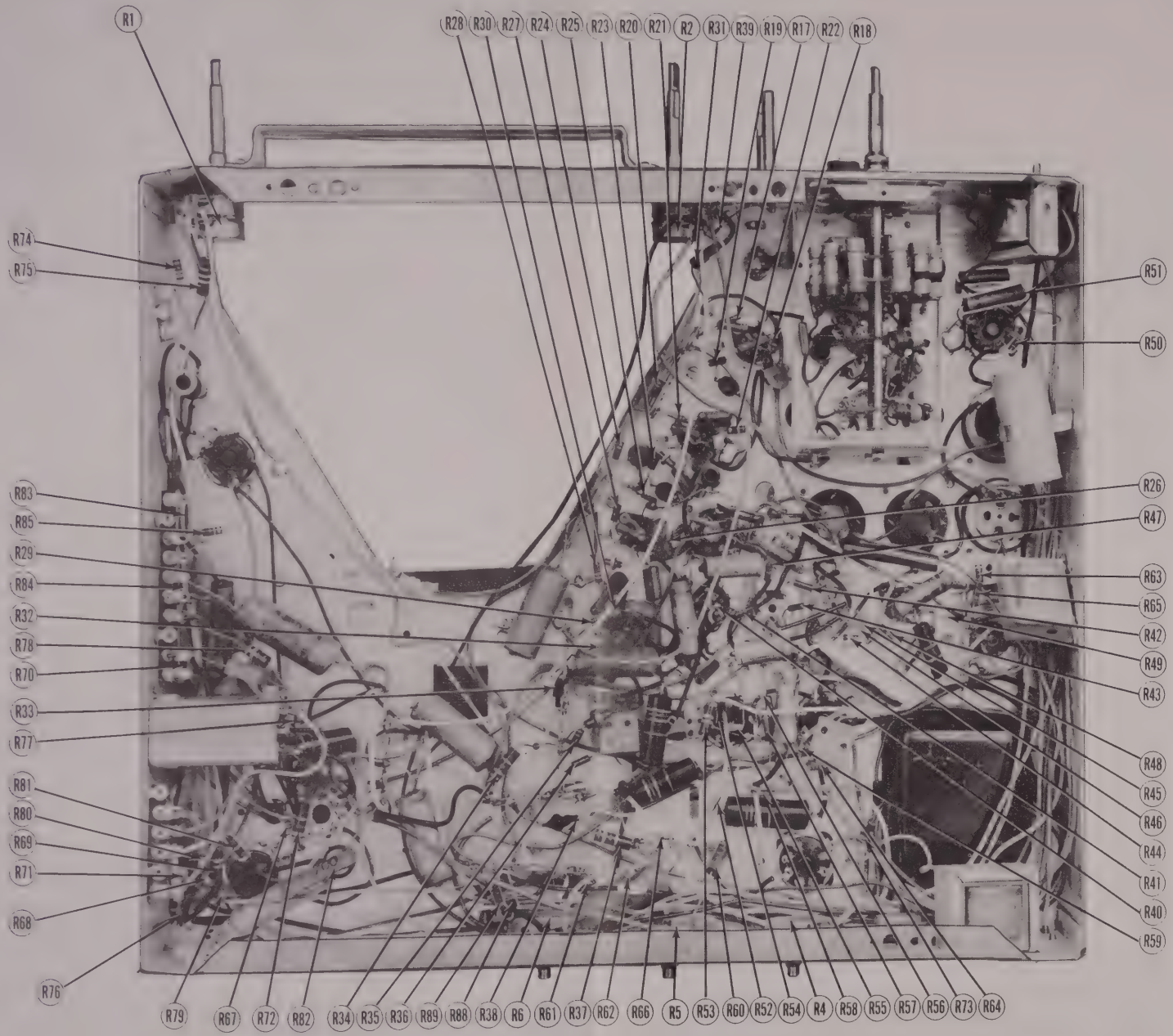
Turn the width slug (B5) to maximum clockwise.

Adjust the horizontal drive trimmer (B4) for maximum brightness with best horizontal linearity. Adjust the horizontal linearity slug (B6) for best linearity in the right half of the picture.

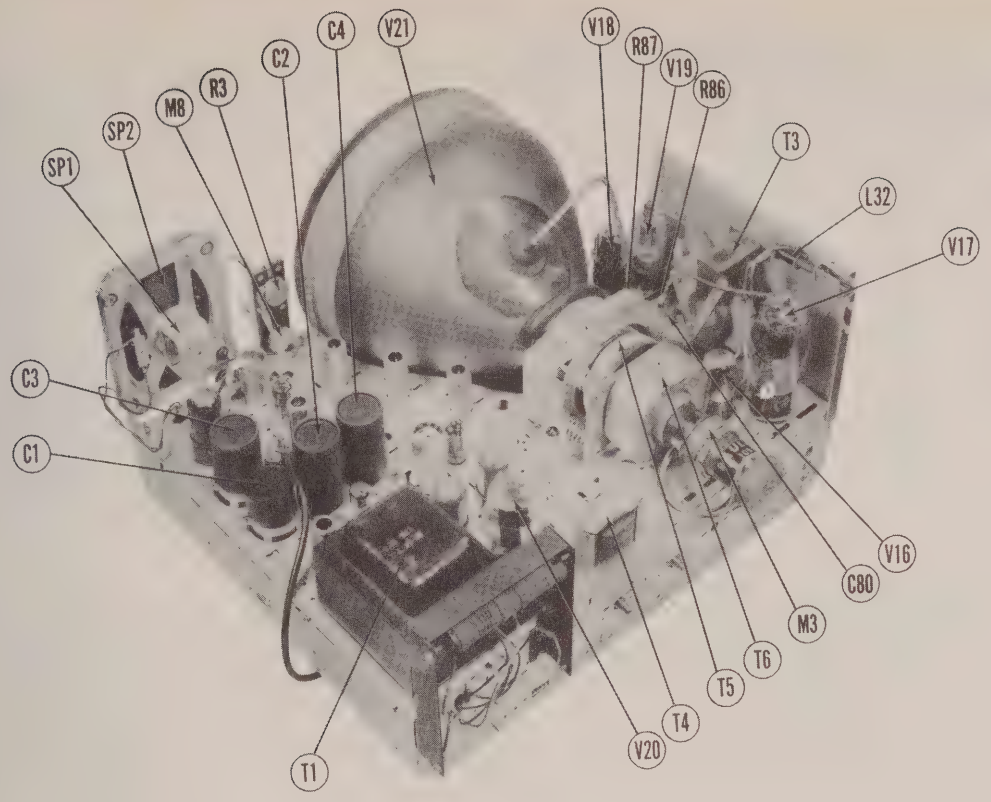
Readjust B5 until the picture fills the mask horizontally.



CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS-TOP VIEW

DISASSEMBLY INSTRUCTIONS

1. Remove ten push-on type control knobs from front of set.
2. Remove four 1/4" hex head screws holding rear cover. Remove three 1/4" hex head screws holding antenna terminals. Remove rear cover.
3. Remove four 3/8" hex head bolts holding chassis. Remove chassis.

FINE TUNING DRIVE CORD STRINGING

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TELE-TONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6J6	6J6	7BF	
V2	Mixer	6AG5	6AG5	7BD	
V3	Oscillator	6J6	6J6	7BF	
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	Video Det.-AGC	6AL5	6AL5	6BT	
V8	Video Amp.	12AU7	12AU7	9A	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Det.	6AL5	6AL5	6BT	
V11	AF Amp.	6AT6	6AT6	7BT	
V12	Audio Output	6K6GT	6K6GT	7S	
V13	Sync. Limiter	6AL5	6AL5	6BT	
V14	Sync. Sep.	6SN7GT	6SN7GT	8BD	
V15	Vert. Osc.-Vert. Amp.	6SN7GT	6SN7GT	8BD	
V16	Hor. AFC-Hor. Osc	6SN7GT	6SN7GT	8BD	
V17	Hor. Output	6BG6G	6BG6G	5BT	
V18	Damper	6W4GT	6W4GT	4CG	
V19	HV Rect.	1B3GT	1B3GT	3C	
V20	LV Rect.	5U4G	5U4G	5T	
V21	Picture Tube	10BP4	10BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELE-TONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	TCE-116-D	AFH8J2H		UP7BJ730		TVL-69	▲ Filter
B	10	350							▲ Vert. Output Decoup.
C2A	40	450	TCE-117-D	AFH8J6D26B		UP9DJ887		TVL-57	▲ Filter
B	40	150							■ Filter
C	130	50							▲ Vert. Output Cath. Byp.
C3A	80	450	TCE-113-D	AFH16J		UP9BJ857		TVL-47	▲ Filter
B	10	450							▲ Vert. Osc. Decoup.
C4A	10	450	TCE-115-D	AFH2J616G		UP8CJ898		TVL-56	▲ Decoupling
B	30	400							■ Filter
C	30	300							▲ Filter
C5	30	450	TCE-136-1-D	PRS450/30		BR3045A		TVA-23	Output Decoupling
C6	4	25	TCE-104-D	PRS150/4		BR550		TVA-13	Stabilizing Cap.
C7	360		TCE-361-10	GP360M	D6-391		GP2K-360		Ant. Coupling
C8	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Cathode Bypass
C9	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Filament Bypass
C10	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Plate Decoup.
C11	1		TCC-010-11		D2-1				RF Coupling
C12	22		TCC-22-12	CN22JNPO	D2-22		NPOK-20		RF Coupling
C13	5000		TCC-502-SP	BPD-5	D6-502		811-005	29C1	Mixer Decoupling
C14	360		TCC-361-10	GP360M	D6-391		GP2K-360		Mixer Fil. Bypass
C15	1		TCC-010-11		D2-1				Osc. Coupling
C16	4.7		TCC-4.7-11	CN4.7DN750	D2-4.7		NPOK-4.7		Osc. Feedback
C17	4.7		TCC-4.7-11	CN4.7DN750	D2-4.7		NPOK-4.7		Osc. Feedback
C18	360		TCE-361-10	GP360M	D6-391		GP2K-360		Osc. Fil. Byp.
C19	360		TCE-361-10	GP360M	D6-391		GP2K-360		RF Bypass
C20	360		TCE-361-10	GP360M	D6-391		GP2K-360		Switch Strut Bypass
C21	360		TCE-361-10	GP360M	D6-391		GP2K-360		Switch Strut Bypass
C22	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C23	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	AGC Filter
C24	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	1st V. IF Decoup.
C25	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	1st V. IF Fil. Bypass
C26	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C27	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	AGC Filter
C28	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	2nd V. IF Decoup.
C29	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	2nd V. IF Fil. Bypass
C30	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C31	1.5		TCC-1.5-11	CH1.5CNPO	D2-1.5		NPOK-1.5		IF Coupling
C32	39	300		SI39JNPO	D2-39	SR5Q4	NPOL-39	MS-44	Fixed Trimmer
C33	.25	400	TCP-254-4	P488-25		GT4P25		TC-2	AGC Filter
C34	1500		TCC-152-10	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	3rd V. IF Decoup.
C35	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Cath. Byp.
C36	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	3rd V. IF Fil. Byp.
C37	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	RF Bypass
C38	270	500	TCM-271-13	GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C39	470		TCC-471-10	GP470M	D6-471	5W5T5	GP2K-470	1FM-35	IF Coupling
C40	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	DAGC Decoupling
C41	5000		TCC-502-SP-D	BPD-5	D6-502	1D5D5	811-005	29C1	DAGC Decoupling *
C42	5	300	TCC-050-11	GP5K	D2-4.7	5W5V5	NPOK-5	MS-55	V. Diode Filter
C43	.05	500	TCP-503-10	P688-05		PTE6S5		TM-15	Video Coupling
C44	.047	600	TCPM-503-10	P688-047		PTE6S5		TM-15	Video Coupling
C45	4700	500	TCM-472-9	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	V. Amp. Cath. Byp.
C46	.25	400	TCP-254-4	P488-25		GT4P25		TC-2	Pic. Tube Cath. Byp.
C47	2.2		TCC-2.2-11	C12.2CNPO	D2-2.2				S. IF Coupling
C48	.02	600	TCP-203-10	P688-02		PTE6S2		TM-12	S. IF Cath. Byp.
C49	.01	600	TCPM-103-10	P688-01	D6-103	PTE6S1	811-01	TM-11	S. IF Decoup.
C50A	2000		TCC-2-1	GP2000M	D2-202	1WSD2	882-2 x 002	29C5	Diode Load Cap. †
B	2000			GP2000M	D2-202	1WSD2			Diode Load Cap. †
C51	1500		TCC-152-SP	GP1500M	D6-152	1WSD15	GP2L-0015	1FM-215	De-emphasis
C52	.002	600	TCP-202-10	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Audio Coupling
C53	.008	600	TCP-103-4	P688-01	D6-103	PTE6S1	811-01	TM-11	Audio Coupling
C54	.0022	600	TCPM-202-10	P688-0022	D6-222	PTE6D2	GP2M-0022	TM-22	De-emphasis
C55	.01	600	TCP-103-4	P688-01	D6-103	PTE6S1	811-01	TM-11	Audio Coupling
C56	.0047	600	TCPM-502-10	P688-0047	D6-472	PTE6D5	GP2M-0047	TM-25	Output Plate Bypass
C57	.047	600	TCPM-503-10	P688-047		PTE6S5		TM-15	Sync. Coupling
C58	100	500	TCM-101-7	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Sync. Coupling
C59	390	500	TCM-391-14	1468-0004	D6-381	5W5T4	GP2K-390	1FM-34	Sync. Sep. Cath. Byp.
C60	.002	600	TCP-202-10	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Integrator Net.
C61	.005	600	TCP-502-10	P688-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.
C62	.005	600	TCP-502-10	P688-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELE-TONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C63	4700	500	TCM-472-5	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C64	.1	1000	TCP-104-13	P1088-1					Vert. Discharge
C65	.22	400	TCPM-254-4	P488-32		GT4P25		TC-2	Vert. Sweep Coup.
C66	120	500	TCM-121-8	1468-00015	D6-121	5W5T15	GP2K-120	1FM-315	Hor. Sync. Coup.
C67	120	500	TCM-121-8	1468-00015	D6-121	5W5T15	GP2K-120	1FM-315	Voltage Divider
C68	.002	600	TCP-202-10	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Hor. Sync. Coup.
C69	.25	400	TCP-254-4	P488-25		GT4P25		TC-2	AFC Filter
C70	.02	600	TCP-203-10	P688-02		PTE6S2		TM-12	AFC Filter
C71	.047	600	TCPM-503-10	P688-047		PTE6S5		TM-15	Hor. AFC Plate Byp.
C72	180	500	TCM-181-29	1468-0002	D6-181	5W5T2	GP2K-180	1FM-32	Hor. Osc. Grid Cap.
C73	2200	500	TCM-222-15		D6-222		GP2M-0022		Hor. Discharge
C74	390	500	TCM-391-14	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Hor. Sweep Coupling
C75	.05	1000	TCP-503-10	P1088-05		GT16S5		TR-15	Hor. Output Screen Byp.
C76	.25	400	TCP-254-4	P488-25		GT4P25		TC-2	Hor. Output Cath. Byp.
C77	.035	600	TCP-353-10	P688-033					Damper Filter
C78	.1	1000	TCP-104-13	1084-1					Damper Filter
C79	5	1500	TCM-050-20						Hor. Feedback
C80	500	10000	TCC-501-SP-D		TV3-501				HV Filter
C81	.01	400	TCP-103-10	P488-01	D6-103	PTE4S1	811-01	TM-11	Line Filter
C82	.01	400	TCP-103-10	P488-01	D6-103	PTE4S1	811-01	TM-11	Line Filter
C83	.25	400	TCP-254-4-SP	P488-25		GT4P25		TC-2	Hor. Sweep Coupling
C84	22			CN22KNPO	D2-22	5R5Q2	NPOK-20	MS-42	Fixed Trimmer *

* Not used in all models.

† When either items C50A or C50B are replaced, replace both with capacitors of equal value.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1.5 Meg.	½	TVC-114-DA	B11-139 *		SBB-586	Vert. hold control-front
B	500KΩ	½		B11-123 *			Horiz. hold control-rear
C	Shaft End			E-187 *			Attach per instr. in "Concentrikit".
R2A	11.5KΩ	½	TVC-519-D			SBB-585	Contrast control-front
B	500KΩ	½					Brightness control-rear
R3	500KΩ	½	TVC-520-D	Q11-133	M-60-Z	B-60	Volume control
R4A	5000Ω	½	TVC-503-1D	Q11-114	AM-19-S	AN-10	Vert. linearity control
B	Shaft		Not Req.	RQ	KSS-3 #	AK-1	Attach to R4A per instructions
R5A	2.5 Meg.	½	TVC-504-1D	Q11-239	AM-84-S	AN-83	Height control
B	Shaft		Not Req.	RQ	KSS-3 #	AK-1	Attach to R5A per instructions
R6	2250Ω	4	TVC-506-1D		10-2500 #	SVS-926	Focus control-Wire Wound

* Additional parts to be used with "Concentrikit".

File slot in shaft to duplicate original.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 20% UNLESS OTHERWISE STATED.
R7	330Ω 10%	½	TRC-331-2		RF Cathode
R8	56Ω 10%	½	TRC-560-2		Parasitic Supp.
R9	1000Ω	½	TRC-102-1	BTS-1000	RF Plate Decoupling
R10	4700Ω 5%	½	TRC-472-3	BTS-4700-5%	Mixer Grid Coil Shunt
R11	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Mixer Grid
R12	1000Ω	½	TRC-102-1	BTS-1000	Mixer Decoupling
R13	27KΩ	½	TRC-273-1		Osc. Grid
R14	27KΩ	½	TRC-273-1		Osc. Grid
R15	47Ω	½	TRC-470-1		Osc. Cathode
R16	1000Ω	½	TRC-102-1	BTS-1000	Osc. Plate Decoupling-See Note 1
R17	5600Ω 5%	½	TRW-562-3	BTS-5600-5%	1st Video IF Grid
R18	39Ω 10%	½	TRC-390-2		1st Video IF Cathode
R19	1000Ω	½	TRC-102-1	BTS-1000	1st Video IF Decoupling
R20	330Ω	½	TRC-331-1		AGC Network
R21	15KΩ 5%	½	TRC-153-3	BTS-15K-5%	2nd Video IF Grid
R22	39Ω 10%	½	TRC-390-2		2nd Video IF Cathode
R23	1000Ω	½	TRC-102-1	BTS-1000	2nd Video IF Decoupling
R24	330Ω	½	TRC-331-1		AGC Network
R25	7500Ω 5%	½	TRW-752-3		3rd Video IF Coil Shunt
R26	100Ω 10%	½	TRC-101-2		3rd Video IF Cathode
R27	1000Ω	½	TRC-102-1	BTS-1000	3rd Video IF Decoupling
R28	560KΩ 10%	½	TRC-564-2	BTS-560K	AGC Network
R29	120KΩ 10%	½	TRC-124-2	BTS-120K	AGC Rect. Diode Load
R30	1500Ω	½	TRC-152-1	BTS-1500	Delayed AGC Network
R31	120KΩ 10%	1	TRC-124-5	BTA-120K	Voltage Divider
R32	5600Ω 5%	½	TRW-562-3	BTS-5600-5%	Video Det. Diode Load
R33	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Video Amp. Grid
R34	3300Ω 10%	1	TRC-332-5	BTA-3300	Video Amp. Plate
R35	47Ω	½	TRC-470-1		Video Amp. Cathode
R36	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Video Amp. Grid
R37	3300Ω 10%	1	TRC-332-5	BTA-3300	Video Amp. Plate
R38	1000Ω 10%	½	TRC-102-2	BTS-1000	Video Amp. Plate
R39	100KΩ 10%	½	TRC-104-2	BTS-100K	Voltage Divider
R40	82Ω 10%	½	TRC-820-2		Sound IF Cathode
R41	1200Ω	½	TRC-122-1	BTS-1200	Sound IF Decoupling
R42	220Ω	½	TRC-221-1		Balancing
R43	220Ω	½	TRC-221-1		Balancing
R44	5.1Ω 10%	½	TRC-51-A-2		Ratio Det. Filament
R45	15KΩ 5%	½	TRC-153-3	BTS-15K-5%	Ratio Det. Diode Load
R46	15KΩ 5%	½	TRC-153-3	BTS-15K-5%	Ratio Det. Diode Load
R47	47KΩ	½	TRC-473-1	BTS-47K	De-emphasis
R48	10 Meg.	½	TRC-106-1	BTS-10 Meg.	AF Amp. Grid
R49	330KΩ	½	TRC-334-1	BTS-330K	AF Amp. Plate
R50	470KΩ	½	TRC-474-1	BTS-470K	Output Grid
R51	1000Ω	2	TRC-102-5	BT-2-1000	Output Decoupling
R52	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Sync. Sep. Grid
R53	15KΩ 10%	1	TRC-153-4	BTA-15K	Sync. Sep. Plate
R54	3.9 Meg. 10%	½	TRC-395-2	BTS-3.9 Meg.	Sync. Sep. Grid
R55	6800Ω	½	TRC-682-1	BTS-6800	Sync. Sep. Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	IDENTIFICATION CODES
R56	22KΩ	½	TRC-223-1	BTS-22K	Integrator Network
R57	8200Ω	½	TRW-822-2	BTS-8200	Integrator Network
R58	8200Ω	½	TRW-822-2	BTS-8200	Integrator Network
R59	1 Meg. 5%	½	TRC-105-3	BTS-1 Meg. 5%	Vert. Osc. Grid
R60	1.5 Meg.	1	TRC-155-4	BTA-1.5 Meg.	Vert. Osc. Plate
R61	6.8 Meg. 10%	½	TRC-685-2	BTS-6.8 Meg.	Voltage Divider
R62	100KΩ 10%	½	TRC-104-2	BTS-100K	Voltage Divider
R63	560Ω 10%	½	TRC-561-2	BTS-560	Vert. Amp. Cathode
R64	2.2 Meg. 10%	1	TRC-225-1	BTA-2.2 Meg.	Vert. Amp. Grid
R65	1000Ω	½	TRC-102-1	BTS-1000	Vert. Amp. Decoupling
R66	3300Ω 10%	½	TRC-332-2	BTS-3300	Vert. Peaking
R67	560KΩ 5%	½	TRC-564-3	BTS-560K-5%	Horiz. AFC Grid
R68	180KΩ 10%	½	TRC-184-2	BTS-180K	Horiz. AFC Cathode
R69	100KΩ 5%	1	TRC-104-3	BTA-100K-5%	Horiz. AFC Cathode
R70	8200Ω 10%	½	TRW-822-1	BTS-8200	Horiz. AFC Filter Network
R71	150KΩ 10%	½	TRC-154-2	BTS-150K	Horiz. AFC Filter Network
R72	3.3 Meg. 5%	1	TRC-335-6	BTA-3.3 Meg. 5%	Voltage Divider
R73	30KΩ 10%	½	TRC-303-12		Voltage Divider-Temp. Compensating
R74	120KΩ 10%	½	TRC-124-2	BTS-120K	Voltage Divider
R75	270KΩ 10%	1	TRC-274-5	BTA-270K	Voltage Divider
R76	100KΩ 1%	1	TRC-104-5P		Horiz. Osc. Grid-Temp. Compensating
R77	10KΩ 10%	½	TRW-103-2	BTS-10K	Horiz. Osc. Transformer Shunt
R78	120KΩ 10%	1	TRC-124-5	BTA-120K	Horiz. Osc. Plate
R79	47Ω	½	TRC-470-1		Parasitic Supp.
R80	1 Meg.	½	TRC-105-1	BTS-1 Meg.	Horiz. Output Grid
R81	82Ω 10%	1	TRC-820-5	BW-1-82	Horiz. Output Cathode
R82	4700Ω 10%	2	TRW-472-8	BW-2-4700	Horiz. Output Screen-Wire Wound
R83	56KΩ 10%	½	TRC-563-2	BTS-56K	Decoupling
R84	10KΩ 10%	½	TRW-103-2	BTS-10K	Filter
R85	560KΩ 10%	½	TRC-564-2	BTS-560K	Feedback
R86	3.3Ω 10%	½	TRC-33A-2		HV Rect. Filament-Wire Wound
R87	1 Meg. 10%	2	TRC-105-8		HV Filter
R88	680Ω 10%	1	TRC-681-4	BW-1-680	Focus Coil Shunt-Wire Wound
R89	680Ω 10%	1	TRC-681-4	BW-1-680	Focus Coil Shunt-Wire Wound
R90A	1125Ω 10%	10	TRP-1		Filter-Wire Wound
B	610Ω 10%	10			Bias Network-Wire Wound
R91A	8200Ω 10%	5			Bleeder-Wire Wound
B	35Ω 10%	1	TRP-2		Bias Network-Wire Wound
C	100Ω 10%	2			Bias Network-Wire Wound
R92	39. 10%	1	TRC-390-5	BW-1-39	Bias Network

Note 1. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 2.1A	700VCT @ .250ADC	5VAC @ 3A	6.3VAC @ 1.2A SEC. 4 6.3VAC @ .6A SEC. 5 6.3VAC @ 7A	TTR-182-D			

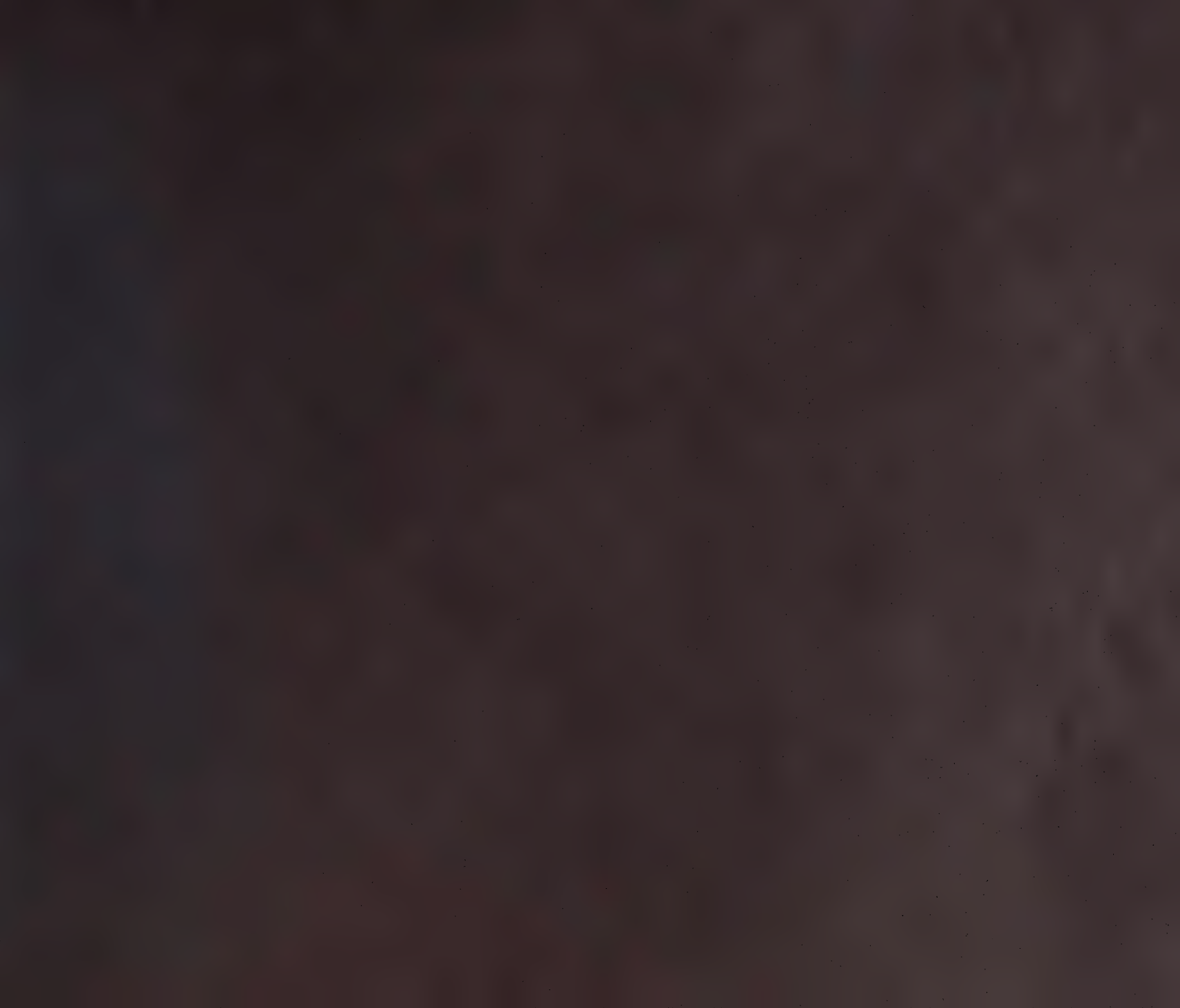
TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	90Ω	1000Ω	TTR-161-1D	A-8111	A-4000 ③	TBO-1 ③	Vert. Block Osc. Trans.
T3	20Ω @ Tap 170Ω	10.5Ω @ Tap .6Ω	TTR-181-D	A-8127	HVO-1	TFB-1	Hor. Output Trans.
		SEC. 2					
		0Ω					
T4	610Ω	9Ω	TTR-153-4D	A-8112	A-3036	TSO-5 ③	Vert. Output Trans.
T5A	14Ω		TTR-159-D	DY-1	MD-3		Hor. Deflection Coil
B	63Ω						Vert. Deflection Coil
T6	245Ω		TLF-521-DA		MF-1		Focus Coil

③ Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	6.5KΩ	3.8Ω	420Ω	.5Ω	Part of SP1	A-3878	A-2931	RO-13	



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	TELE-TONE PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.8Ω	TSF-463-D ④	46J6	46A07	④ Includes output transformer.
	CONE DIA.	V. C. DIA.				
SP2	4" x 6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↜)	TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.250A	50Ω	.6 Henry	TTR-106-D	C-2326 ③	C-2991 ③	TR-3300③	③ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	TELE-TONE PART No.	MEISSNER PART No.	
L2	RF Choke	0Ω				
L3	RF Plate	0Ω				Channel 13
L4	Mixer Grid	0Ω				Channel 13
L5	Osc. Coil	0Ω		TLF-120-1D		Channel 2
L6	Osc. Coil	0Ω		TLF-120-2D		Channel 3
L7	Osc. Coil	0Ω		TLF-120-3D		Channel 4
L8	Osc. Coil	0Ω		TLF-120-4D		Channel 5
L9	Osc. Coil	0Ω		TLF-120-5D		Channel 6
L10	Osc. Coil	0Ω		TLF-120-6D		Channel 7
L11	Osc. Coil	0Ω		TLF-120-7D		Channel 8
L12	Osc. Coil	0Ω		TLF-120-8D		Channel 9
L13	Osc. Coil	0Ω		TLF-120-9D		Channel 10
L14	Osc. Coil	0Ω		TLF-120-10D		Channel 11
L15	Osc. Coil	0Ω		TLF-120-10D		Channel 12
L16	Osc. Coil	0Ω		TLF-120-10D		Channel 13
L17	RF Choke	0Ω				
L18	1st Video IF	0Ω		TLF-147-D		
L19	2nd Video IF	0Ω		TLF-517-D		
L20	RF Choke	1.3Ω		TLF-146-D		
L21	3rd Video IF	.1Ω		TLF-148-D		
L22	Sound Trap	0Ω		TTR-158		
L23	RF Choke	1.3Ω		TLF-146-D		
L24	4th Video IF	0Ω		TLF-149-D		
L25	Peaking	2.4Ω		TLF-503		36 microhenries
L26	Peaking	5Ω		TLF-502	19-1921 †	120 microhenries, wound on 22KΩ resistor
L27	Peaking	4.9Ω		TLF-519-D	19-1921	100 microhenries, red identification dot
L28	Peaking	5Ω		TLF-502	19-1921 †	120 microhenries, wound on 22KΩ resistor
L29	Peaking	2.6Ω		TLF-503		36 microhenries
L30	Sound IF	1.4Ω		TLF-114-D		
L31	Ratio Det. Trans.	4.4Ω	2.2Ω	TLF-142-D		
L32	Horiz. Osc.	125Ω		TTR-157		Tap at 33Ω
L33	Horiz. Lin.	25Ω		TLF-506		
L34	Horiz. Size	.2Ω		TLF-505-D		

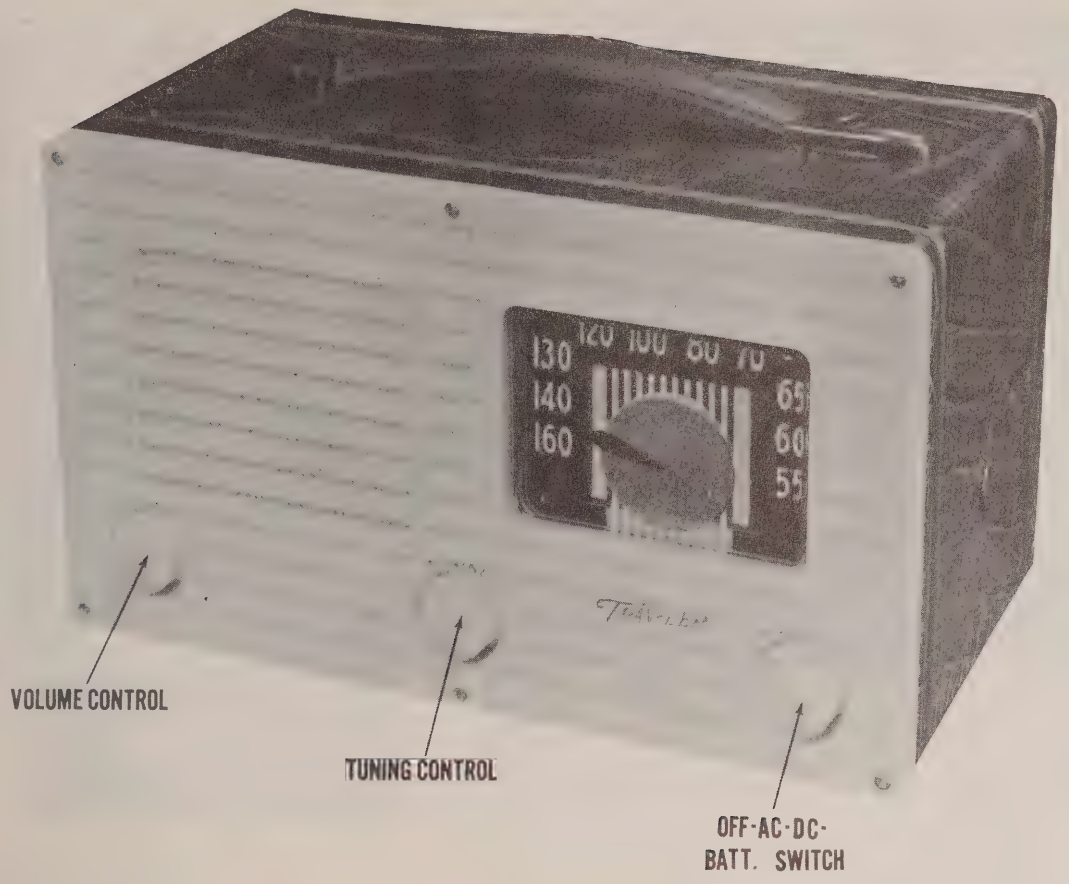
† Add 22KΩ resistor in parallel.

MISCELLANEOUS

ITEM No.	PART NAME	TELE-TONE PART No.	NOTES
M1	RF Tuner		
M2	Fuse	TFU-2	.25A 250V Type 3AG
M3	Ion Trap	TLF-500-1D	
M4	Trimmer	TAS-501-D	Horiz. Freq. 40 to 370MMF
M5			Horiz. Drive 40 to 370MMF
M6			Horiz. Range 10 to 160MMF
M7	Trimmer	TAS-503-D	Fine tuning 2.5 to 4 MMF
M8	Switch		Power Off-On
	Knob	TKN-118-D	Built-in antenna
	Knob	TKN-108	Channel selector
	Knob	TKN-100	Fine tuning
	Knob	TKN-100	Vert. hold
	Knob	TKN-100	Brightness
	Knob	TKN-101	Horiz. hold
	Knob	TKN-101	Contrast
	Knob	TKN-100	Off-On outside knob
	Knob	TKN-103	Off-On inside knob
	Knob	TKN-100	Volume outside knob
	Knob	TKN-103	Volume inside knob

TRAV-LER
MODEL 5022 (BATTERY-LINE OPERATED)

TRAV-LER
MODEL 5022 (BATTERY-LINE OPERATED)



TRAV-LER
MODEL 5022 (BATTERY-LINE OPERATED)

TRAV-LER MODEL 5022

TRADE NAME	Trav-ler Model 5022
MANUFACTURER	Trav-ler Radio and Tel. Corp., 571 W. Jackson, Chicago, Illinois
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES	Types 1R5 Converter, 1U4 IF Amp., 1U5 DET-AVC-AF, 3V4 Power Output
POWER SUPPLY RATINGS	110-125 Volts AC-DC or 3 Volts "A" Supply and 67.5 Volts "B" Supply .14 Amp. at 117 Volts AC or 150MA at 3 Volts DC and 9MA at 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer parallel with base of dial.
Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.	.1MFD	"	1650KC	"	"	A5	"
3.		Loop	1400KC	Adjust for max. output	"	A6	Replace set in cabinet. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TRAV-LER MODEL 5022

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amp.	1U4	1U4	6AR	
V3	DET-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	EC-14	PRSA888D		EDL42215		TA-304	Filter-Red
B	40	150							Filter-Blue
C	20	150							Filter-Green
C2	70	10	EC-6	PRS12/100		BRH121A		UHC-112	Fil. Bypass
C3	.05	400	PC-2	P488-05		PTE4S5		TM-15	AVC Filter
C4	100	500	MC-2	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Osc. Grid Cap.
C5	.01	400	PC-7	P488-01	D6-103	PTE4S1	811-01	TM-11	Decoupling
C6	.01	400	PC-7	P488-01	D6-103	PTE4S1	811-01	TM-11	IF Grid Filter
C7	.1	200	PC-3	P288-1		PTE4P1		TM-1	Fil. Bypass
C8A	150		MC-7	GP150M	D6-151	5W5T15	GP2K-150		Diode RF Filter
B	2000			GP2000M	D6-202	PTE6D2	GP2M-002		Audio Coupling
C	5000			BPD-5	D6-502	PTE6D5	811-005	34C4	AF Amp. Screen
D	100			GP100M	D6-101	5W5T1	GP1K-100		AF Amp. Plate
E	5000			BPD-5	D6-502	PTE6D5	811-005		Audio Coupling
C9	.005	600	PC-6	P688-005		PTE6D5	811-005	TM-25	Output Plate Byp.
C10	.1	400	PC-8	P488-1		PTE4P1		TM-1	Line Isolation
C11	.05	400	PC-5	P488-05		PTE4S5		TM-15	Line Filter

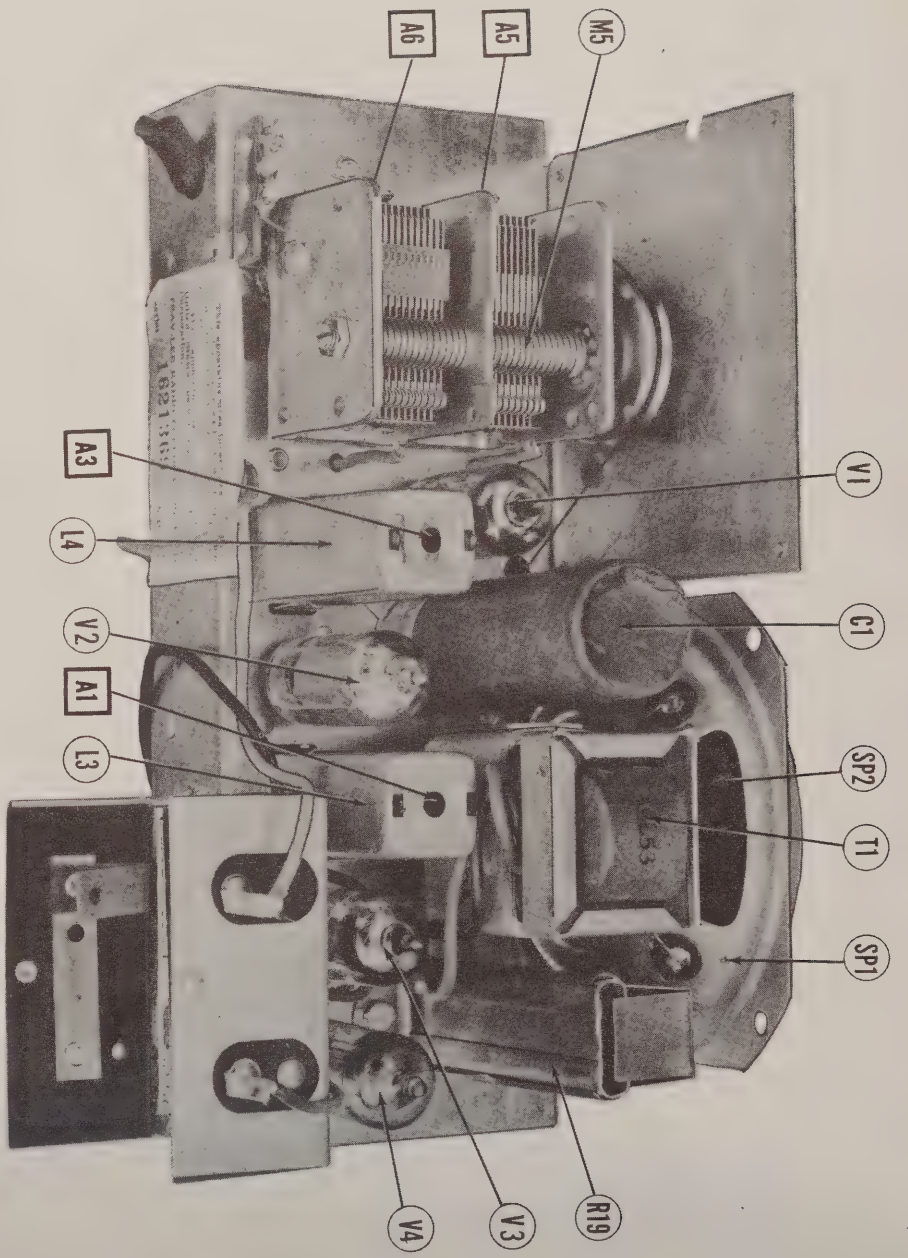
CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	VC-11	Q13-137	AM-63-Z	BSK-70	Volume control
B	Shaft			Not Req.	KSS-3	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	IDENTIFICATION CODES
R2	220KΩ	½	IR-20	BTS-220K	Osc. Grid
R3	3.3 Meg.	½	IR-23	BTS-3.3 Meg.	AVC Network
R4	10KΩ	½	IR-37	BTS-10K	Decoupling
R5	10 Meg.	½	IR-3	BTS-10 Meg.	IF Grid Filter
R6	82KΩ	½	IR-31	BTS-82K	Diode Filter
R7	10 Meg.	½	IR-3	BTS-10 Meg.	AF Grid
R8	3.3 Meg.	½	IR-23	BTS-3.3 Meg.	AF Screen
R9	1 Meg.	½	IR-12	BTS-1 Meg.	AF Plate
R10	2.2 Meg.	½	IR-13	BTS-2.2 Meg.	Output Grid
R11	470Ω	½	IR-1	BTS-470	Filament String
R12	33Ω	½	IR-17	BW-½-33	Filament Dropping
R13	270Ω	½	IR-33	BW-½-270	Filament Dropping
R14	620Ω	½	IR-39		Filament String
R15	270Ω	½	IR-33	BW-½-270	Bias Network
R16	33Ω	½	IR-17	BTS-33	Surge Limiter
R17	47Ω	1	IR-41	BW-1-47	Filter
R18	3900Ω	1	IR-40	BTA-3900	Filter
R19A	1050Ω	5	WR-7		Filter-Wire Wound
B	1050Ω				Filament Dropping
R20	220KΩ	½	IR-20	BTS-220K	Line Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRAV-LER PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	5000Ω	3.6Ω	350Ω	.6Ω	Part of SP1	A-3328 ①	A-3026 ①	RO-11 ①	① Bend tabs down and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRAV-LER PART No.	VIKING PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3.6Ω	SPK-16	35J4	3A07 ②	② Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 1/4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.
L1	Loop Ant.	1.5Ω		LL-23	
L2	Osc. Coil	.3Ω	1Ω	LO-8	14-1060
L3	1st IF	22Ω	22Ω	LI-5	16-6668
L4	2nd IF	22Ω	22Ω	LI-5	16-6669

SELENIUM RECTIFIER

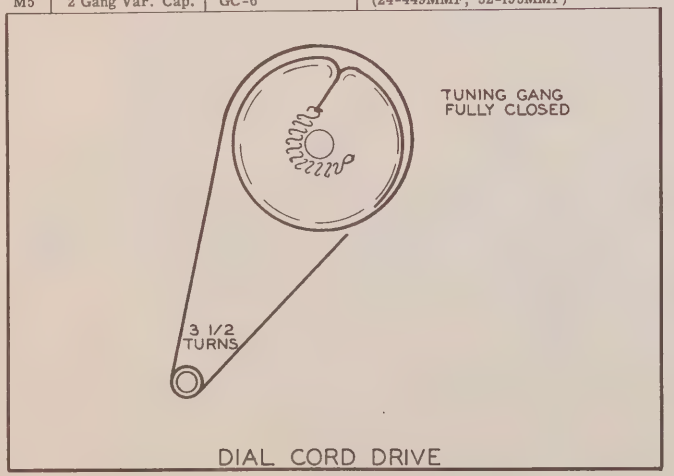
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	TRAV-LER PART No.	SYLVANIA PART No.		
M1	.060ADC	SR-2	NB-5		

BATTERIES

ITEM No.	VOLTAGE	TRAV-LER PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	3V "A"		950			2R			2 required
M3	67.5V "B"			467			XX45		

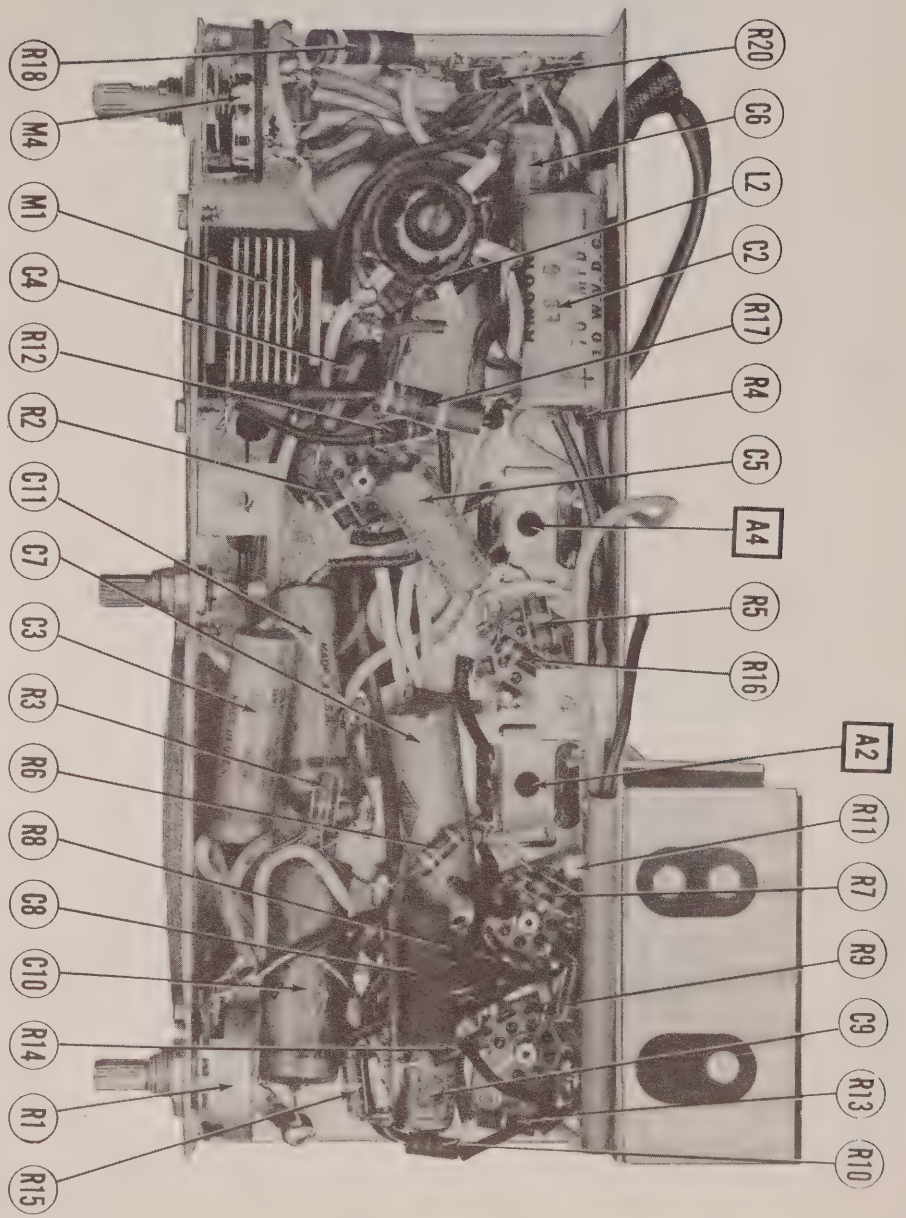
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M4	Switch	SW-8	AC/DC-Battery
M5	2 Gang Var. Cap.	GC-6	(24-449MMF, 32-195MMF)

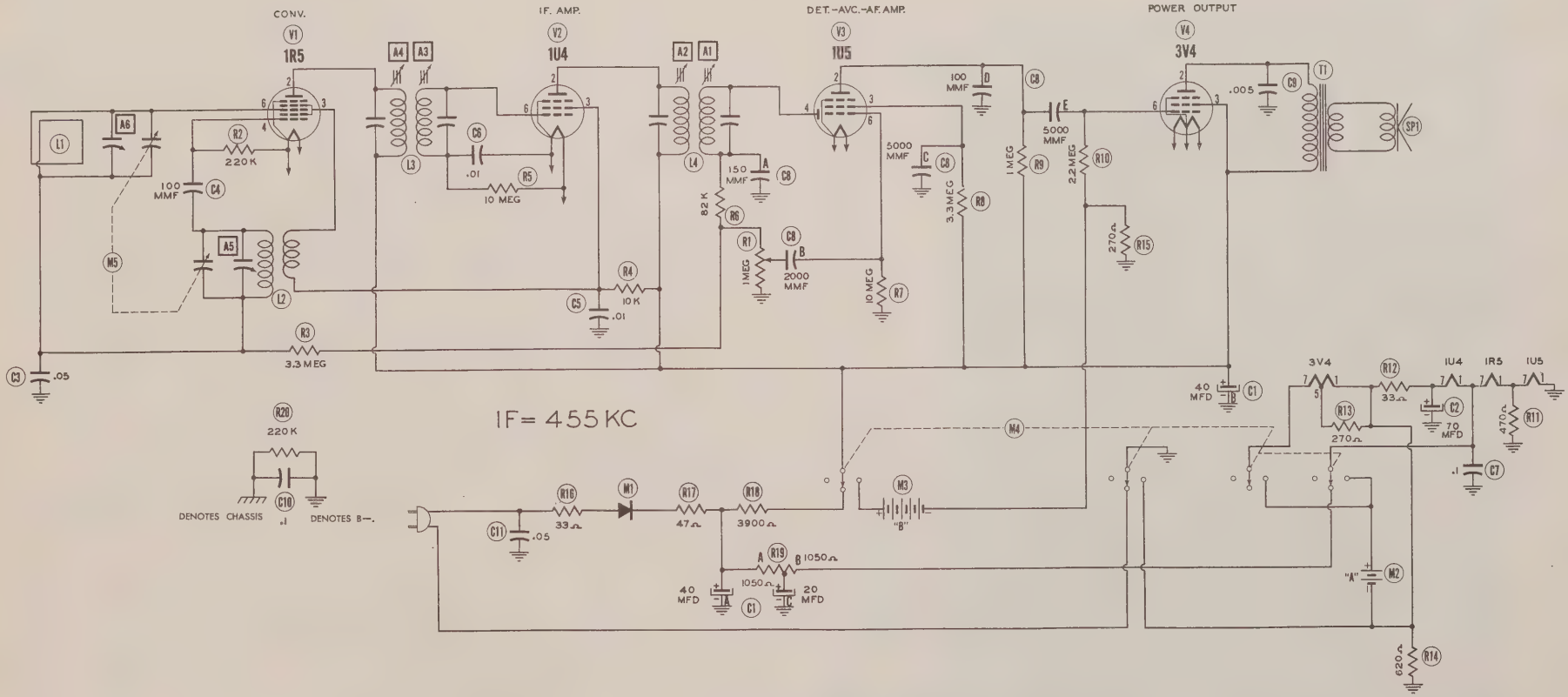


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TRAV-LER MODEL 5022



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC/DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	1.4VDC	85VDC	60VDC	5-10VDC	1.4VDC	0V.	2.7VDC
V 2	1U4	2.7VDC	85VDC	60VDC	5.6VDC	2.7VDC	.1VDC	4VDC
V 3	1U5	0V.	5.2VDC	4.9VDC	0V.	0V.	0V.	1.4VDC
V 4	3V4	5.6VDC	85VDC	85VDC	0V.	7VDC	0V.	8.5VDC

$ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†4KΩ	†14KΩ	22KΩ	*	4.3 Meg.	*
V 2	1U4	*	†4KΩ	†14KΩ	*	*	10 Meg.	*
V 3	1U5	*	†1 Meg.	†3.3 Meg.	1 Meg.	Inf.	10 Meg.	*
V 4	3V4	*	†4.3KΩ	†4KΩ	Inf.	*	2.2 Meg.	*

† MEASURED FROM OUTPUT OF M1.
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

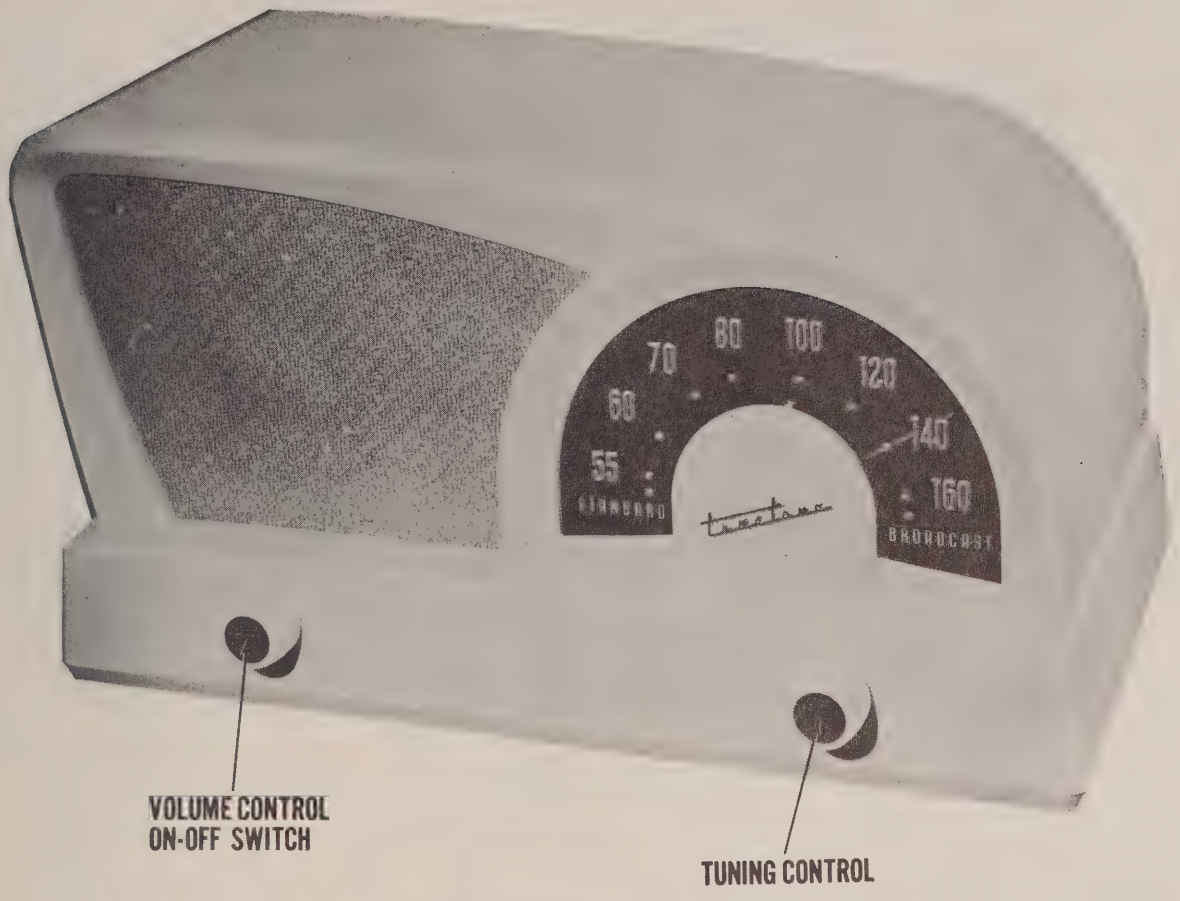
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRUETONE
MODEL D2017, D2018



TRUETONE
MODEL D2017, D2018

TRUETONE MODEL D2018

TRADE NAME	Truetone, Models D2017 (Fact. Model 25D26-006), D2018 (Fact. Model 225D26-002)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types 12BA6 RF Amp., 12BE6 Converter, 12BA6 IF Amp., 12AV6 DET-AVC-AF, 35C5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING .23 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 12BE6 (V2). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully closed	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	.1MFD	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune for max. output	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2018

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	12BA6	12BA6	7BK	
V2	Converter	12BE6	12BE6	7CH	
V3	IF Amp.	12BA6	12BA6	7BK	
V4	DET-AVC-AF	12AV6	12AV6	7BT	
V5	Power Output	35C5	35C5	7CV	
V6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	45X343	AF1010D4A		UP5515C		EL-352	■ Filter
B	50	150							▲ Filter
C	20	25							Output Cathode
C2	1000		D65102	GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	Ant. Coupling
C3	20		47X516	GP20M	D6-200	5W5Q2	GP1K-20	MS-42	RF Coupling
C4	47		47X495	GP47M	D6-470	5W5Q5	GP1K-47	1FM-45	Osc. Grid Cap.
C5	.05	200	B66503	P288-05		PTE4S5		TM-15	AVC Filter
C6	.05	200	B66503	P288-05		PTE4S5		TM-15	Decoupling
C7	.02	200	B66203	P488-02		PTE4S2		TM-12	IF Cathode
C8A	50		*	GP50M	D6-500	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
B	50			GP50M	D6-500	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
C9	.08	200	B66803	P288-1		PTE4P1		TM-1	Phono Isolation
C10	68	500	47X471	1468-000075	D6-680	5W5Q7	GP1K-68	1FM-475	Tone Comp.
C11	.02	200	B66203	P488-02		PTE4S2		TM-12	Tone Comp.
C12	.006	400	B66602	P488-006	D6-562	PTE6D6	811-005	TM-26	Audio Coupling
C13A	250		†	GP250M	D6-251	5W5T25	GP2K-250	1FM-325	AF Amp. Plate
B	10000			GP10000M	D6-103	PTE4S1	811-01	TM-11	Audio Coupling
C14	.01	200	B66103	P488-01	D6-103	PTE4S1	811-01	TM-11	Output Plate
C15	.2	200	B66204	P488-22		GT4P2		72P53	Line Isolation
C16	.05	400	D66503	P488-05		PTE4S5		TM-15	Line Filter
C17	.05	200	B66503	P288-05		PTE4S5		TM-15	Decoupling

* Items C8A, C8B and R8 are combined into one unit obtainable under MFGR'S Part No. 76X1
† Items C13A, C13B, R11A, and R11B are combined into one unit obtainable under MFGR'S Part No. 76X5

CONTROLS

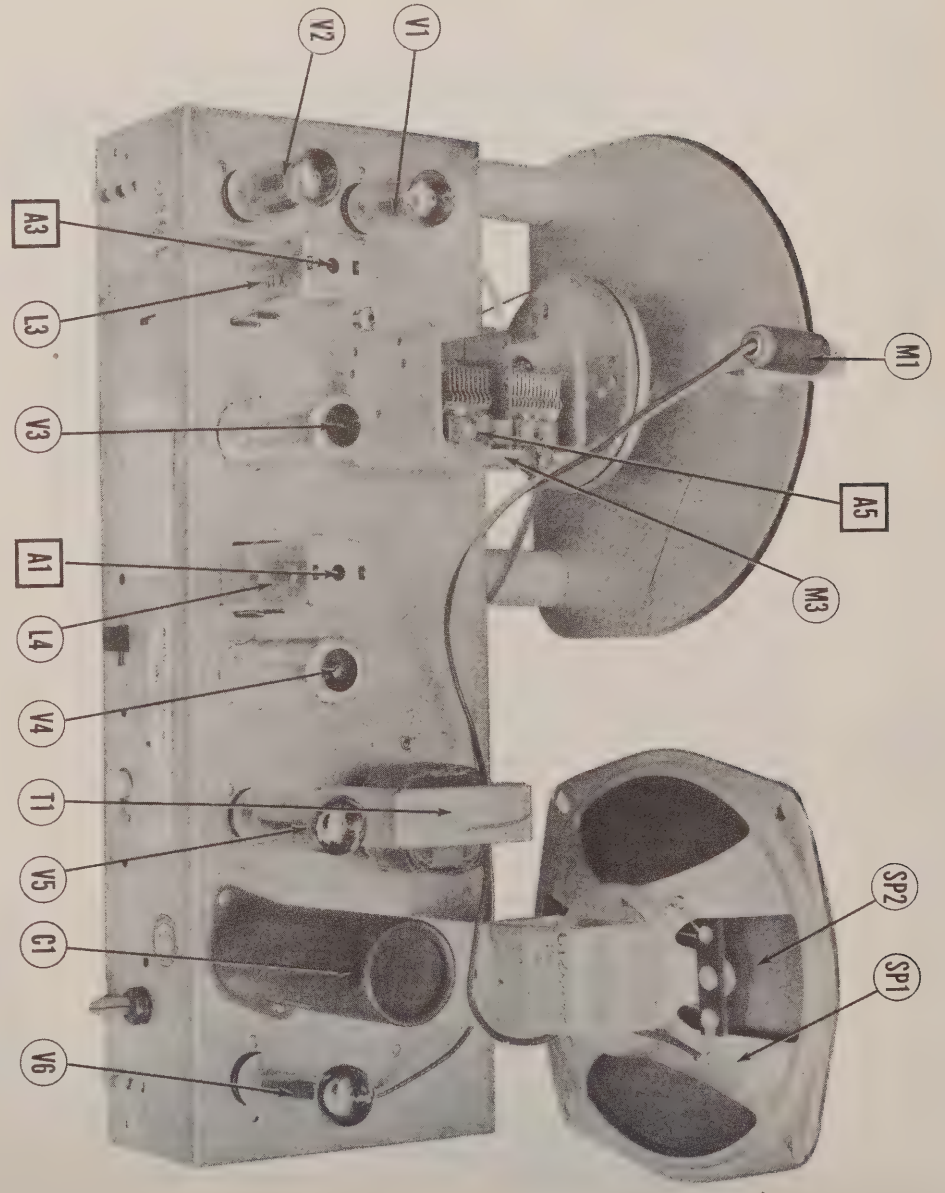
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	36X385	Q13-133X	AT-78	BTSK-66-S	Volume control
B	Switch			76-1	SW-A	Not Req.	Attach to R1A per instructions
C	Shaft			Not Req.	KSS-3	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	3300Ω	½	B84332	BTS-3300	RF Plate
R3	39KΩ	½	B85393	BTS-39K	Osc. Grid
R4	100KΩ	½	B85104	BTS-100K	AVC Network
R5	3300Ω	½	B84332	BTS-3300	Decoupling
R6	1000Ω	½	B84102	BTS-1000	Decoupling
R7	330Ω	½	B84332	BW-½-330	IF Cathode
R8	47KΩ	½	*	BTS-47K	Diode Filter
R9	2.2 Meg.	½	B85225	BTS-2.2 Meg.	AVC Network
R10	10 Meg.	½	B85105	BTS-10 Meg.	AF Grid
R11A	500KΩ	½	†	BTS-470K	AF Plate
B	500KΩ	½	†	BTS-470K	Output Grid
R12	180Ω	½	B84181	BW-½-180	Output Cathode
R13	22KΩ	½	B85223	BTS-22K	Tone Compensation
R14	1500Ω	1	C84152	BTA-1500	Filter
R15	27Ω	½	B83270		Rect. Ballast
R16	39Ω	2	D84390	BW-2-39	Filament Dropping
R17	270KΩ	½	B84274	BTS-270K	Isolation
R18	1500Ω	1	C84152	BTA-1500	Filter-See Note 1

* Items C8A, C8B and R8 are combined into one unit obtainable under MFGR'S Part No. 76X1
† Items C13A, C13B, R11A and R11B are combined into one unit obtainable under MFGR'S Part No. 76X5
Note 1. Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2400Ω	4.1Ω	285Ω	.7Ω	51X148	A-3876 ①	A-3018	RO-2 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-803		
SP1	PM	4.1Ω	12A499	MOD. P525-V	52A1	
	CONE DIA.	V. C. DIA.				
SP2	5"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.
L1	Loop Ant.	.2Ω	1.7Ω	9A2102	
L2	Osc. Coil	.6Ω	6.8Ω	9A2101	14-1073
L3	1st IF	17Ω	17Ω	9A2108	16-6758
L4	2nd IF	19.5Ω	19.5Ω	9A2109	16-6758

DIAL LIGHTS

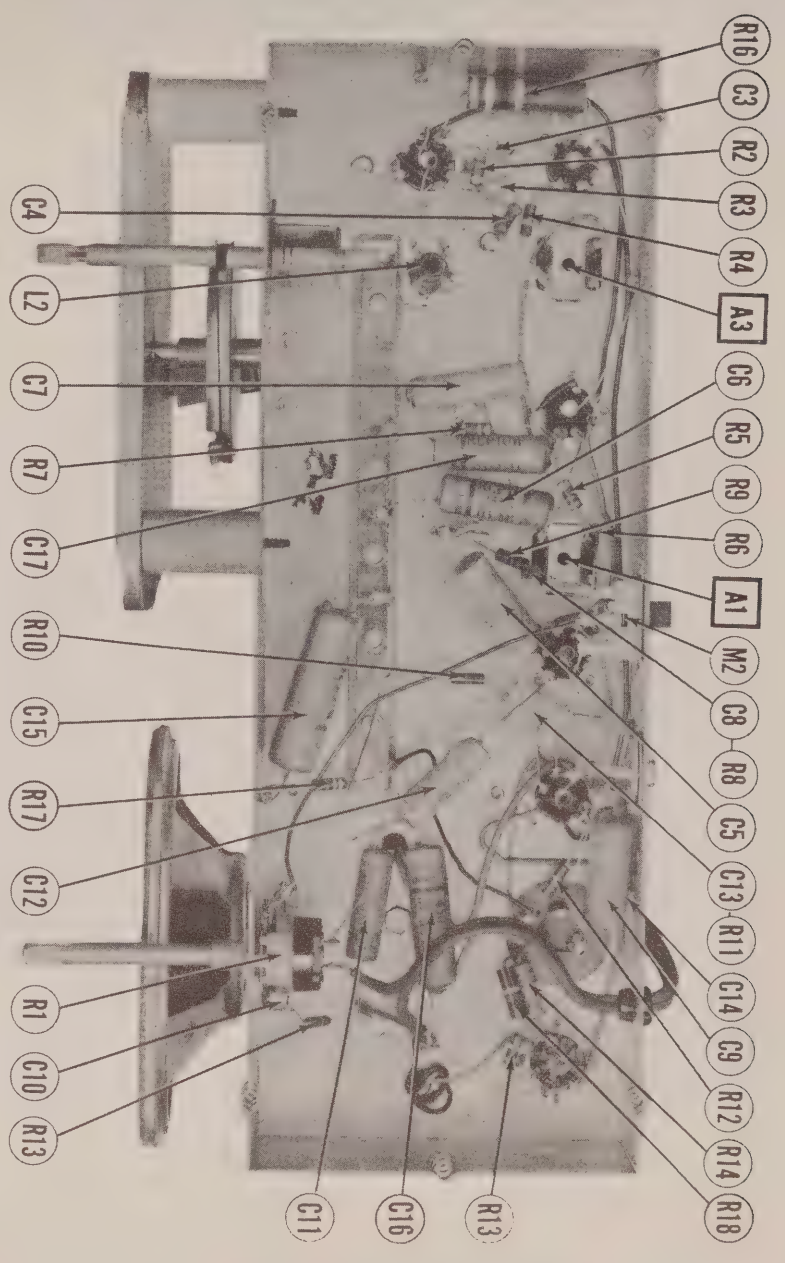
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					TRUETONE PART No.		
M1	Bayonet	6-8	.15	Brown	7A103		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M2	Switch	2A402	Radio-Phono
M3	2 Gang Var. Cap.	14A212	(27-472MMF, 25-182MMF)
A6	Trimmer	17A256	Ant. Adj.
	Dial Glass	58X735	
	Dial Pointer	15X271	
	Knob	10A760	Ivory
	Knob	10A761	Walnut
	Cabinet	55X384	Ivory
	Cabinet	55X392	Walnut

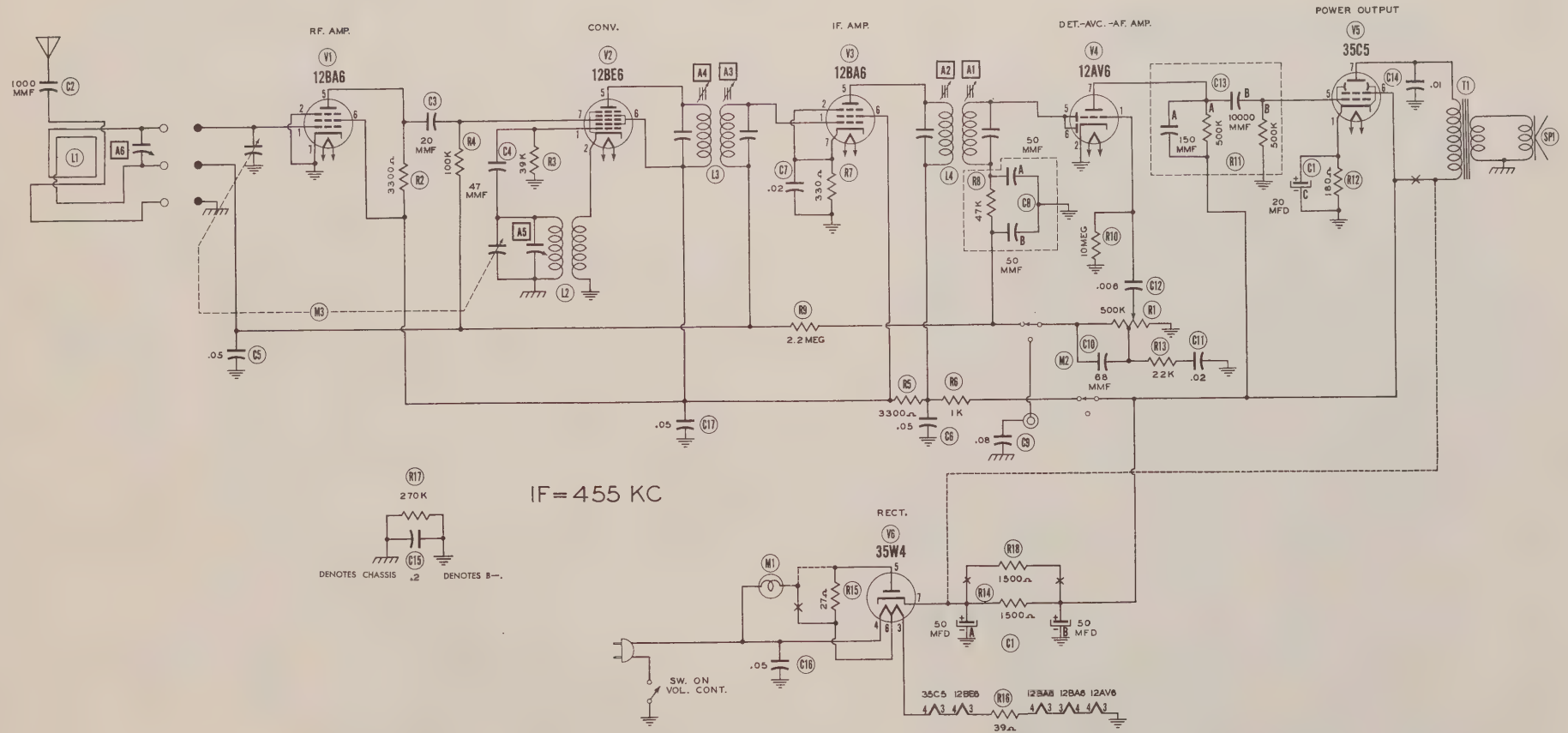
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D2018

TRUETONE MODEL D2018



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BA6	-.6VDC	0V.	23.5VAC	35.5VAC	40VDC	50VDC	0V.
V 2	12BE6	8-3.2VDC	0V.	41.5VAC	51VAC	50VDC	50VDC	-.4VDC
V 3	12BA6	-.6VDC	.9VDC	23.5VAC	11.5VAC	80VDC	50VDC	.9VDC
V 4	12AV6	-.8VDC	0V.	0V.	11.5VAC	-.6VDC	-.6VDC	55VDC
V 5	35C5	5.8VDC	0V.	51VAC	85VAC	0V.	90VDC	85VDC
V 6	35W4	0V.	0V.	85VAC	117VAC	110VAC	112VAC	125VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BA6	2.7 Meg.	0Ω	25Ω	36Ω	†8.4KΩ	†5.1KΩ	0Ω
V 2	12BE6	39KΩ	.6Ω	75Ω	87Ω	†5.1KΩ	†5.1KΩ	2.8KΩ
V 3	12BA6	2.7KΩ	330Ω	25Ω	13Ω	†1.8KΩ	†5.1KΩ	330Ω
V 4	12AV6	10 Meg.	0Ω	0Ω	13Ω	550KΩ	550KΩ	†500KΩ
V 5	35C5	180Ω	500KΩ	87Ω	120Ω	500KΩ	†800Ω	†1100Ω
V 6	35W4	Inf.	Inf.	120Ω	150Ω	170Ω	150Ω	45KΩ

† MEASURED FROM PIN 7 OF V6.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

101-15

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WESTINGHOUSE MODELS H-309P5, H-309P5U (Ch. V-2156) (BATTERY-LINE OPERATED)

WESTINGHOUSE MODELS H-309P5, H-309P5U (Ch. V-2156) (BATTERY-LINE OPERATED)

WESTINGHOUSE MODEL H-309P5

TRADE NAME	Westinghouse, Models H-309P5, H-309P5U (Ch. V-2156)
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury, Pa.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1U5 DET-AVC-AF, 3V4 Power Output
POWER SUPPLY	105-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply in Pack Form
RATING	.17 Amp. at 117 Volts AC or 52MA at 9 Volts DC and 17MA at 90 Volts DC
TUNING RANGE—BROADCAST	540-1615KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set left hand edge of pointer 3/8" from left hand end of pointer back plate.

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	200MMF	High side to pin 6 (Grid) of 1R5 (V2). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	200MMF	High side to pin 6 (Grid) of 1U4 (V1). Low side to B-.	1615KC	"	"	A5	Adjust for maximum output.
3.	200MMF	"	1400KC	Adjust for max. output	"	A6	"
4.	200MMF	"	600KC	"	"	A7	Adjust for maximum output. Repeat steps 3 and 4 until no further improvement can be made.
5.		Loop	1400KC	1400KC	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

WESTINGHOUSE MODEL H-309P5

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	1U4	1U4	6AR	
V2	Converter	1R5	1R5	7AT	
V3	IF Amp.	1U4	1U4	6AR	
V4	DET-AVC-AF	1U5	1U5	6BW	
V5	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: WESTINGHOUSE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	60	150	V-6552-2	E4D228		UP8DJ1233			▲ Filter
B	80	150							■ Filter
C	40	150							▲ Filter
D	100	25							Filament Bypass
C2	.05	200	RCP10W2503M	P288-05		PTE4S5		68P16	AVC Filter
C3	.05	200	RCP10W2503M	P288-05		PTE4S5		72P51	Line Isolation
C4	100	500	RCM20A101M	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	RF Coupling
C5	220	500	RCM20A221M	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	RF Coupling
C6	.05	200	V-6066-2503M	P285-05		PTE4S5		68P16	Filament Bypass
C7	.05	200	RCP10W2503M	P288-05		PTE4S5		68P16	Osc. Anode Bypass
C8	.15	200	RCP10W2154M	P288-15				68P18	Filament Bypass
C9	.05	200	RCP10W2503M	P288-05		PTE4S5		68P16	Filament Bypass
C10	.05	200	RCP10W2503M	P288-05		PTE4S5		68P16	RF Bypass
C11A	150		V-9703-1	1468-00015	D6-151	5W5T1	GP2K-150		Diode RF Filter
B	2000			P285-002	D6-202	ZYW4D2	GP2M-002		Audio Coupling
C	5000			P285-005	D6-502	ZYW5D5	811-005	34C4	AF Amp. Screen Byp.
D	100			1468-0001	D6-101	5W5T1	GP1K-100		AF Amp. Plate Byp.
E	5000			P285-005	D6-502	ZYW4D5	811-005		Audio Coupling
C12	.002	600	V-6066-4202M	P688-002	D6-202	PTE6D5	GP2M-002	68P27	Output Plate Bypass
C13	.05	400	RCP10W4503M	P488-05		PTE4S5		TM-15	Line Filter

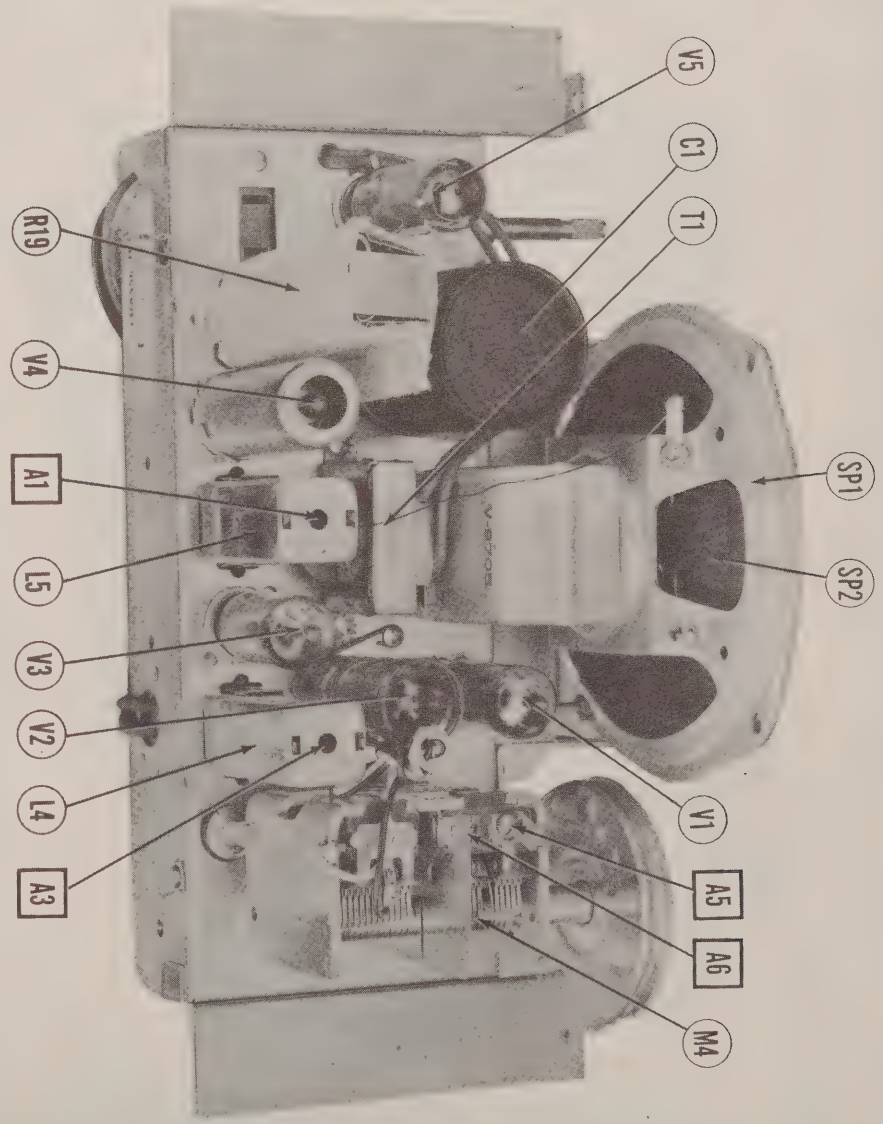
CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: WESTING. PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	1/2	V-5666-5	Q13-133	AM-60-Z	BSK-60-S	Volume control
B	Switch			76-2	SW-A2	Not Req.	Attach to R1A per instructions
C	Shaft			Not Req.	KSS-3	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: WESTINGHOUSE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	27KΩ	1/2	RC20AE273M	BTS-27K	RF Plate
R3	1 Meg.	1/2	RC20AE105M	BTS-1 Meg.	Conv. Grid
R4	100KΩ	1/2	RC20AE104M	BTS-100K	Osc. Grid
R5	6.8 Meg.	1/2	RC20AE685M	BTS-6.8 Meg.	AVC Network
R6	6.8 Meg.	1/2	RC20AE685M	BTS-6.8 Meg.	AVC Network
R7	2.2 Meg.	1/2	RC20AE225M	BTS-2.2 Meg.	AVC Network
R8	68KΩ	1/2	RC20AE473M	BTS-68K	Diode Filter
R9	10 Meg.	1/2	RC20AE106M	BTS-10 Meg.	AF Grid
R10	1.5 Meg.	1/2	RC20AE155M	BTS-1.5 Meg.	AF Screen
R11	470KΩ	1/2	RC20AE474M	BTS-470K	AF Plate
R12	2.2 Meg.	1/2	RC20AE225M	BTS-2.2 Meg.	Output Grid
R13	1000Ω	1/2	RC20AE102K	BTS-1000	Filament String
R14	2200Ω	1/2	RC20AE222K	BTS-2200	Filament String
R15	1000Ω	1/2	RC20AE102K	BTS-1000	Filament String
R16	10KΩ	1/2	RC20AE103M	BTS-10K	Screen Dropping
R17	22Ω	1	RC30AE220M		Surge Limiter
R18	2200Ω	1	RC30AE222K	BTA-2200	Filter
R19A	1285Ω	5	V-9246-1		Filter -Wire Wound
B	1285Ω	5			Filament Dropping -Wire Wound
R20	220KΩ	1/2	RC20AE224M	BTS-220K	Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WESTING.	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T1	10,100Ω	3.5Ω	410Ω	.5Ω	V-6567	A-3329			

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WESTINGHOUSE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113		
SP1	PM	3.5Ω	V-9705	MOD. P4-X	4A07	
	CONE DIA.	V. C. DIA.				
SP2	4 1/2"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	WESTING. PART No.	MEISSNER PART No.	
L1	Loop Ant.	3.3Ω		V-9701		Includes trimmer
L2	RF Coil	12Ω		V-6561		Tap at 4Ω
L3	Osc. Coil	2.7Ω	12.5Ω	V-5661	14-1074	
L4	1st IF	19Ω	19Ω	V-6972-5	16-6668	
L5	2nd IF	25Ω	25Ω	V-6972-6	16-6669	

SELENIUM RECTIFIER

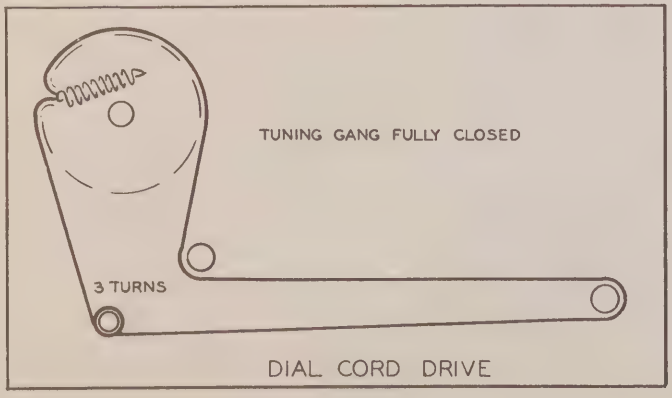
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	WESTINGHOUSE PART No.	SYLVANIA PART No.		
M1	.070ADC	V-9558	ND-5		

BATTERIES

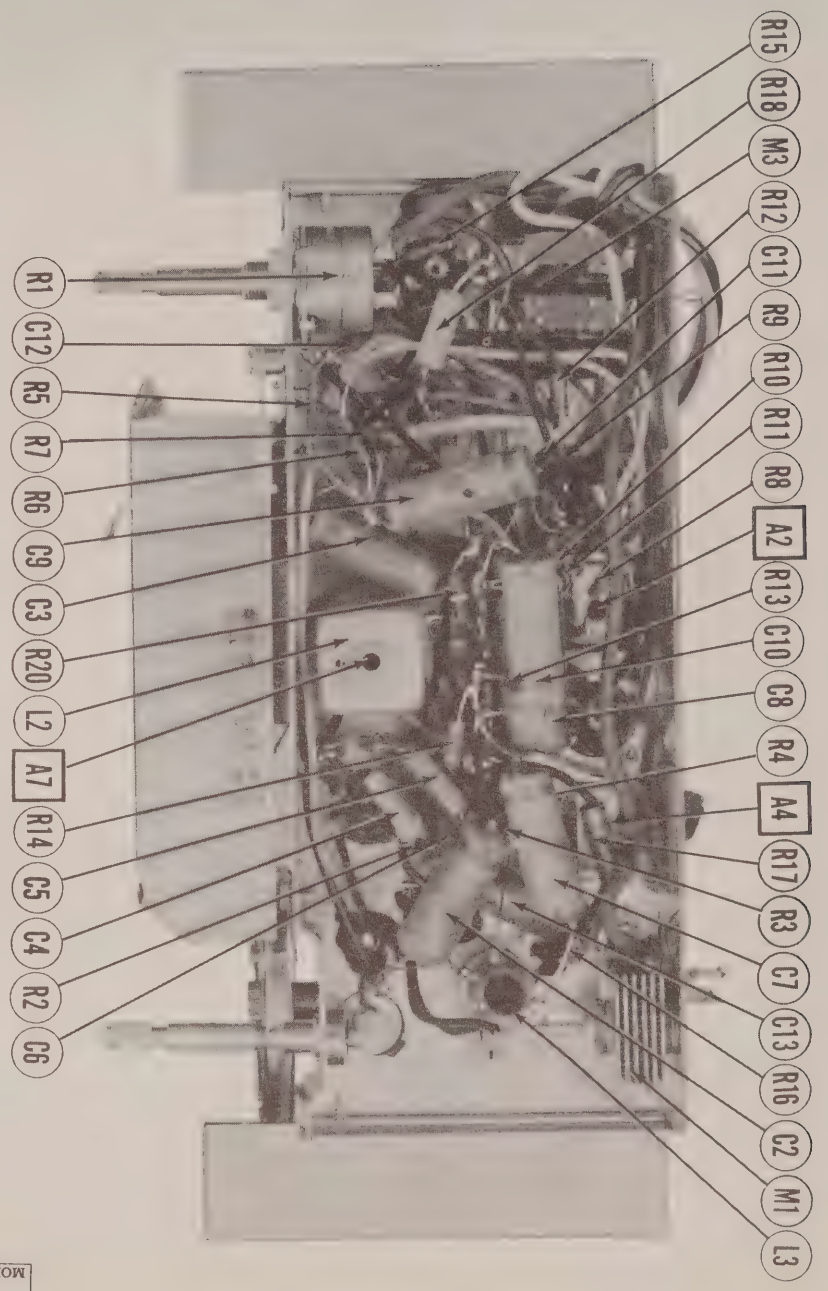
ITEM No.	VOLTAGE	WESTINGHOUSE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	9V "A" 90V "B"				756			T6Z60	

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
M3	Switch	V-6565	AC/DC-Battery
M4	3 Gang Var. Cap.	V-6556	(20-457MMF, 17-253MMF, 18-109MMF)
	Dial Pointer	V-6568-2	
	Knob	V-9699-1	
	Cabinet	V-1204-1	



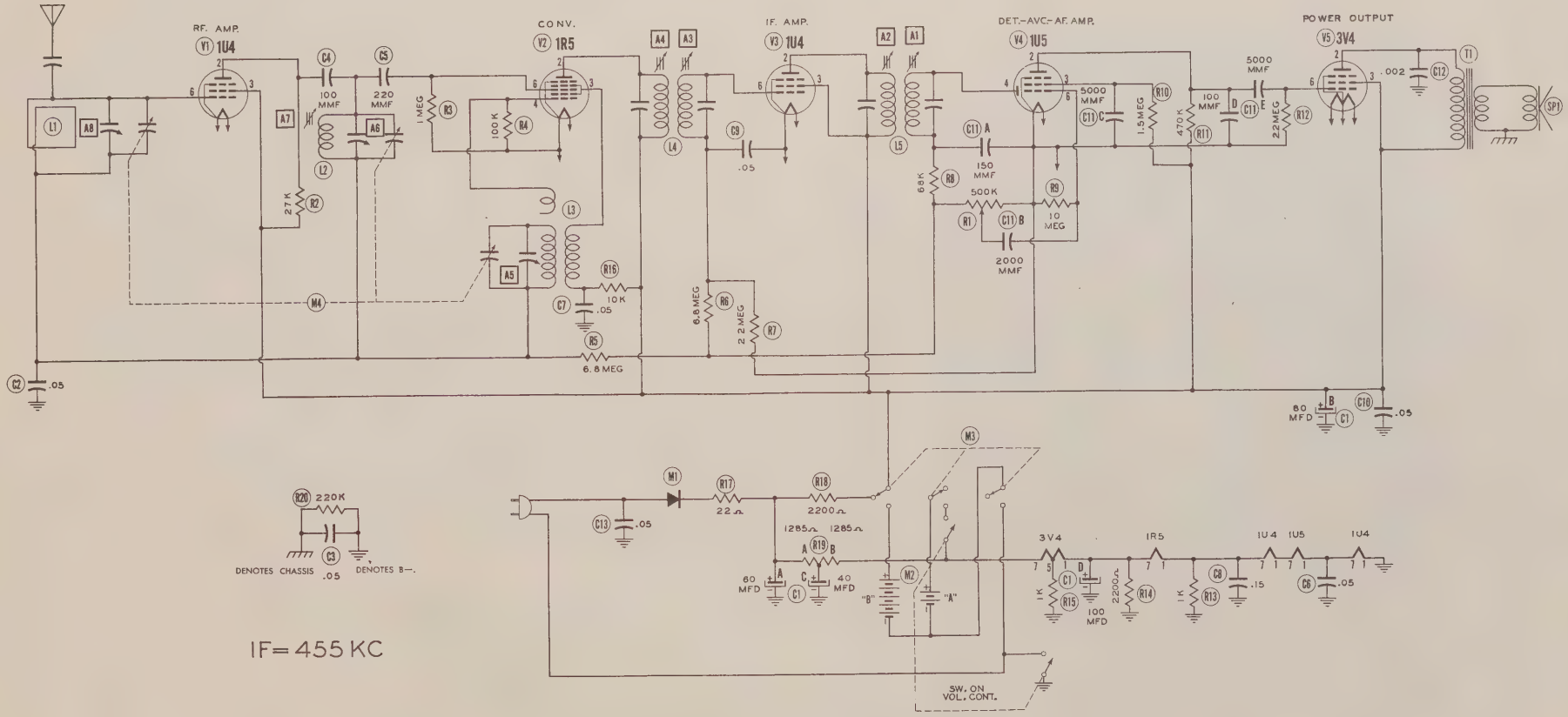
CHASSIS—BOTTOM VIEW



SET 101 FOLDER 16

WESTINGHOUSE MODEL H-309P5

WESTINGHOUSE MODEL H-309P5



IF= 455 KC

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC/DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	0V.	75VDC	95VDC	0V.	0V.	-.1VDC	1.4VDC
V 2	1R5	4VDC	95VDC	85VDC	$-10VDC	4VDC	.6VDC	5.2VDC
V 3	1U4	2.6VDC	95VDC	95VDC	0V.	2.6VDC	.1VDC	4VDC
V 4	1U5	1.4VDC	16VDC	24VDC	.4VDC	1.4VDC	.1VDC	2.6VDC
V 5	3V4	5.2VDC	90VDC	95VDC	0V.	6.4VDC	.2VDC	7.6VDC

$ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	*	†30KΩ	†2.2KΩ	Inf.	*	7 Meg.	*
V 2	1R5	*	†2.2KΩ	†12KΩ	100KΩ	*	1 Meg.	*
V 3	1U4	*	†2.2KΩ	†2.2KΩ	Inf.	*	2.2 Meg.	*
V 4	1U5	*	†470KΩ	†1.5 Meg.	547KΩ	*	10 Meg.	*
V 5	3V4	*	†2.6KΩ	†2.2KΩ	Inf.	*	2.2 Meg.	*

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1950

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

WILCOX-GAY MODEL
OD-446M (OD SERIES)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

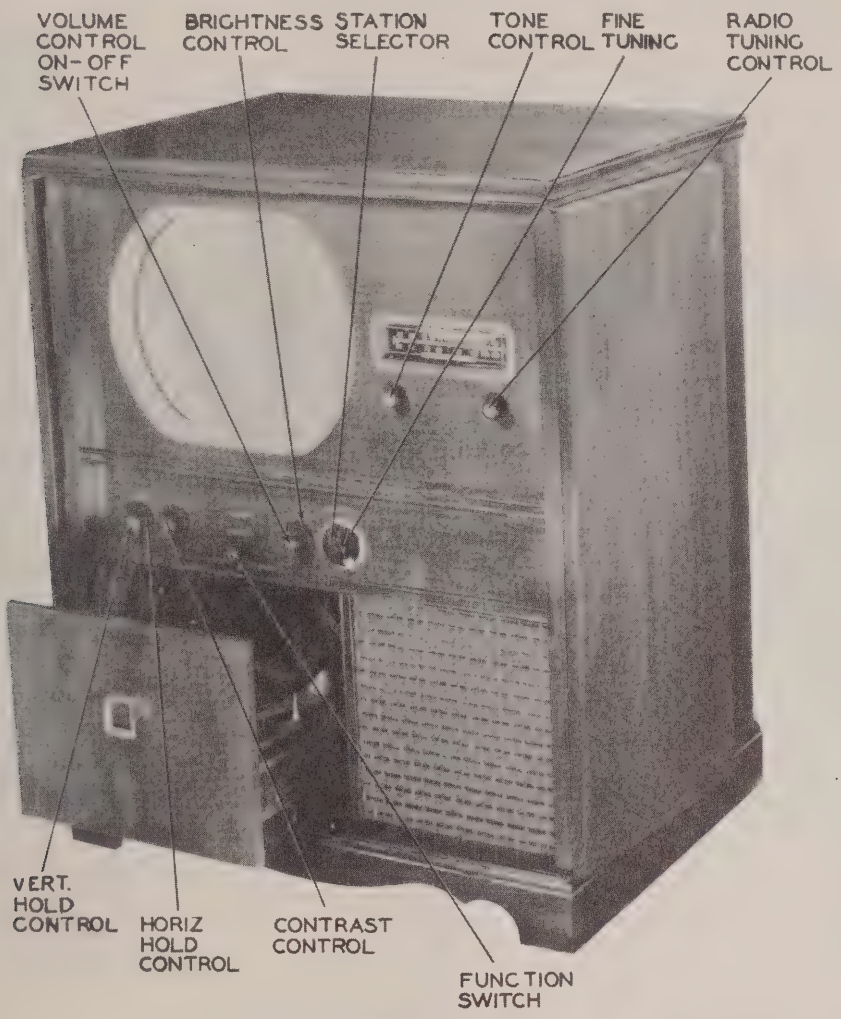
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

WILCOX-GAY MODEL
OD-446M (OD SERIES)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Date 7/50 Set No. 101—Folder No. 17



WILCOX-GAY MODEL OD-446M

TRADE NAME	Wilcox-Gay, Model OD-446M (OD Series)
MANUFACTURER	Wilcox-Gay Corp., Charlotte, Michigan
TYPE SET	AM-FM-Phono-TV Receiver
TUBES	Twenty Six

POWER SUPPLY 110-120 Volts AC 60 Cycle RATING 1.9 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST 540-1620KC, FREQ. MOD. 88-108MC, TV Channels 2 thru 13

INDEX

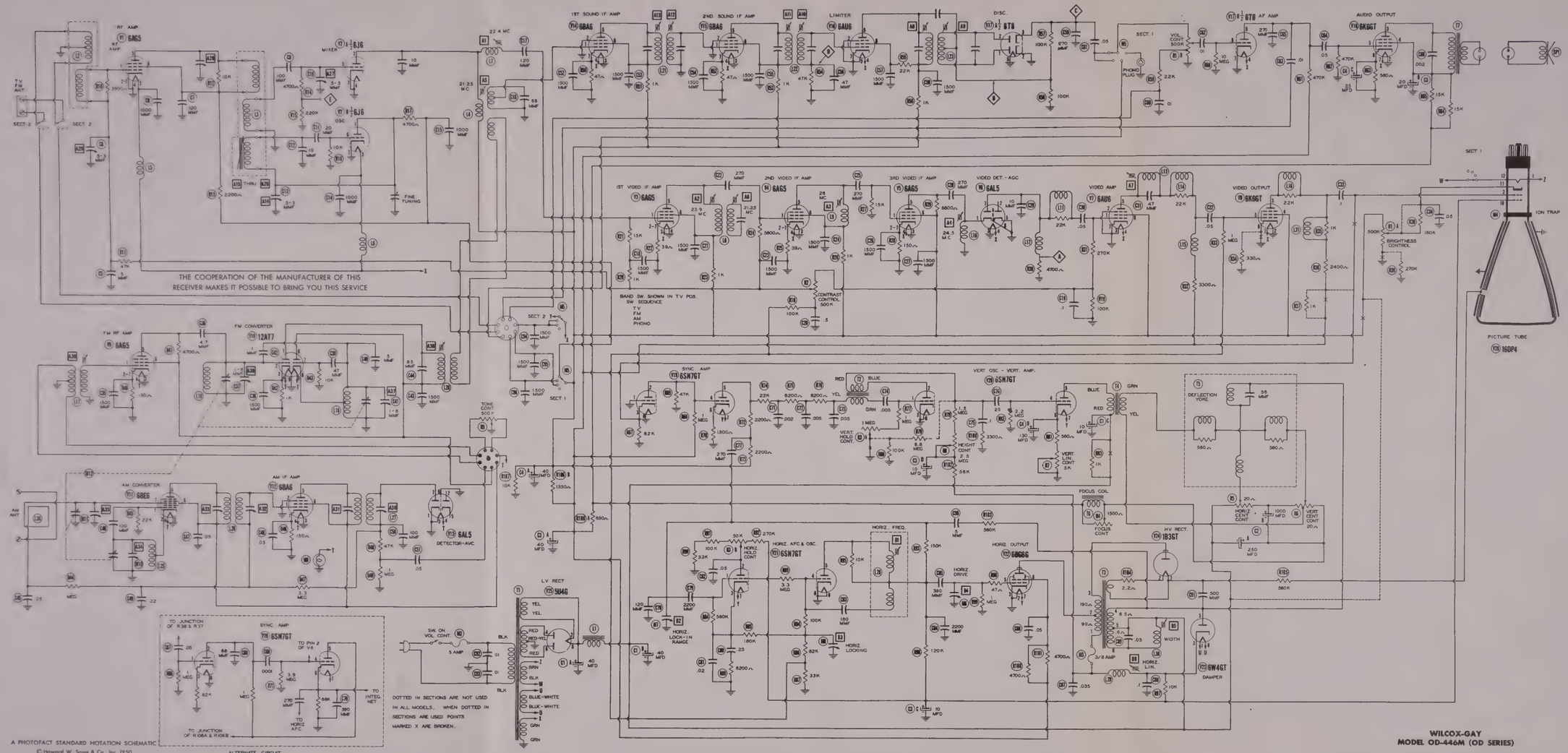
Alignment Instructions 6, 7
Disassembly Instructions 19
Horiz. Sweep Circuit Adjustment 19
Parts List and Description 14, 15, 16
Photographs
Cabinet-Rear View 19
Capacitor Identification 11, 18
Chassis-Top View 3
Photographs (continued)
RF Tuner 10
Radio Tuner 13
Resistor Identification 12, 17
Trans., Inductor and Alignment Identification 4, 9
Schematic 2
Tube Placement Chart 5
Voltage and Resistance Measurements 8

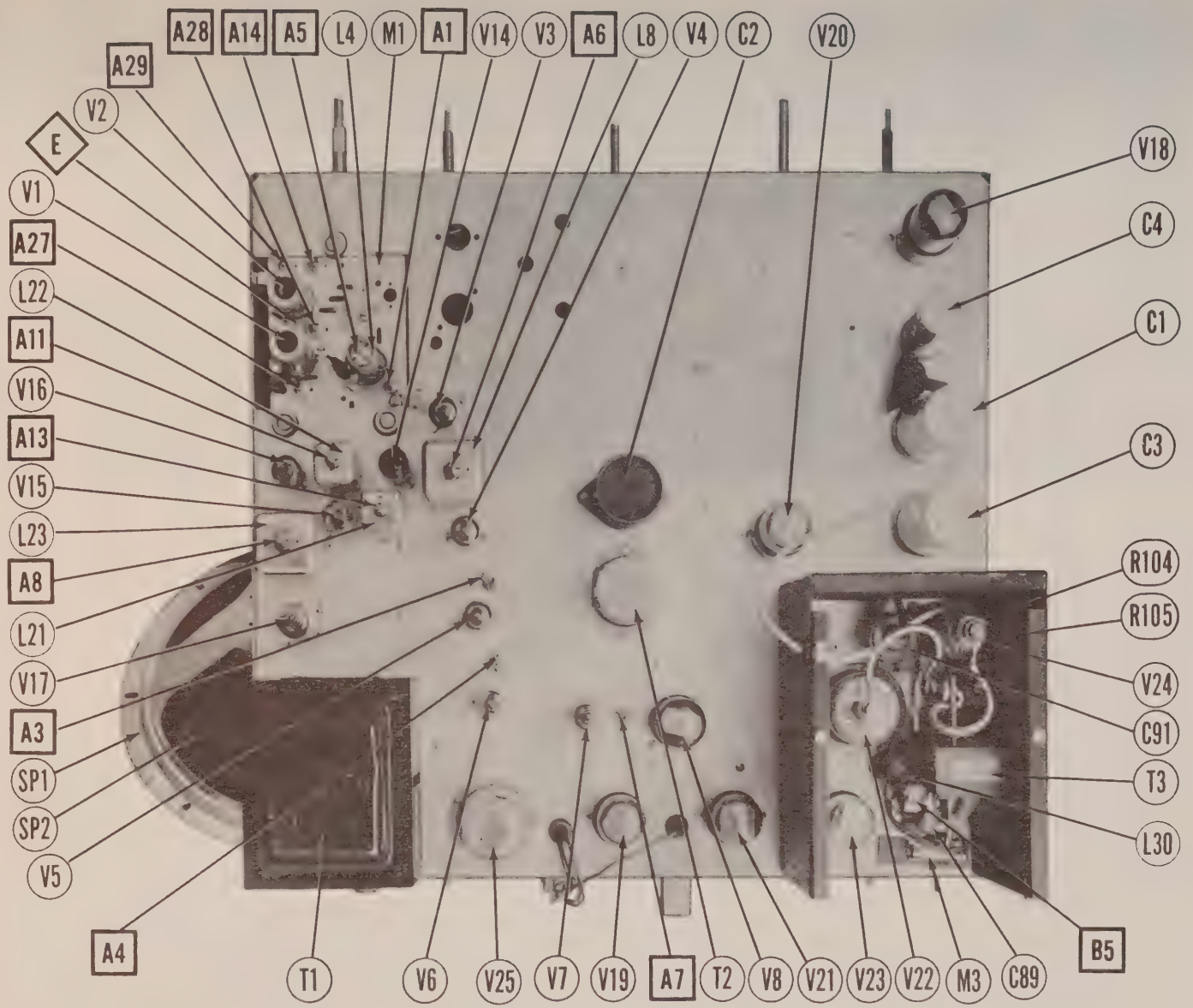
HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

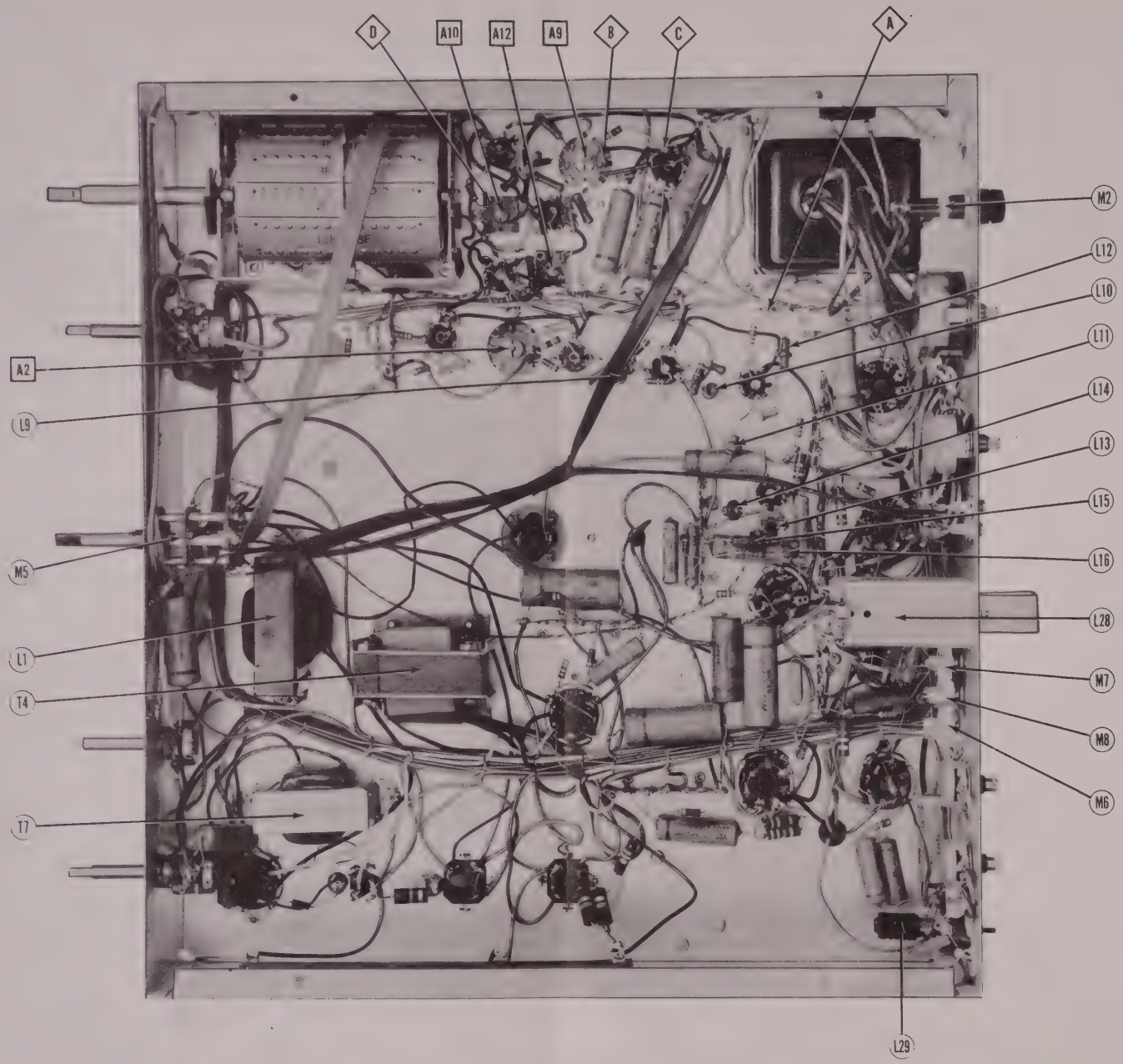
DATE 7-50 SET 101 FOLDER 17

WILCOX-GAY
MODEL OD-446M (OD SERIES)

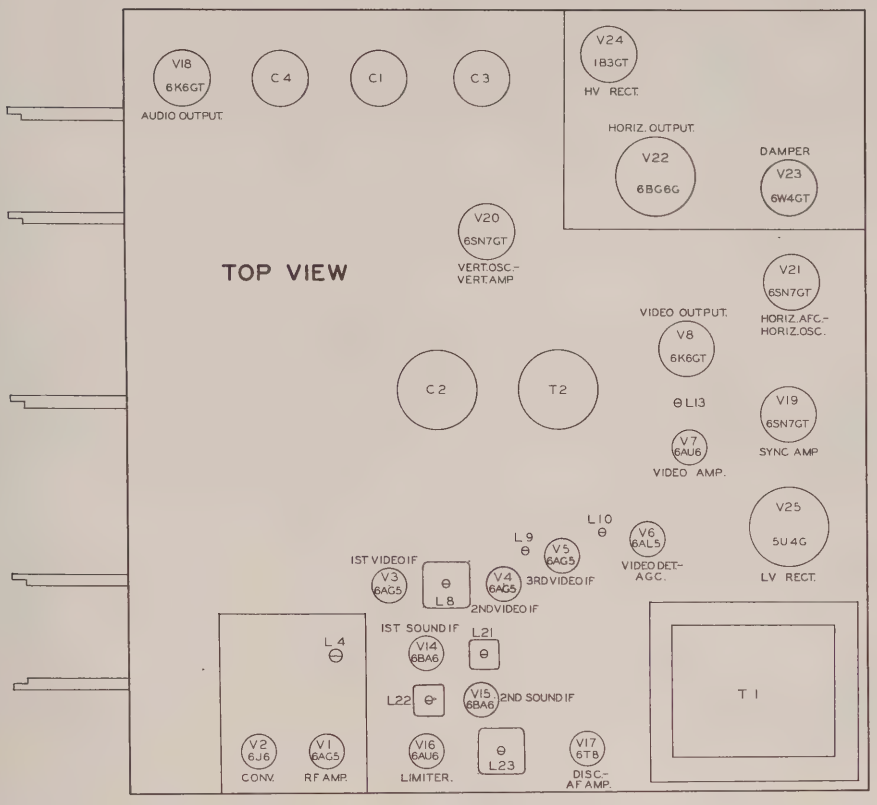

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
WILCOX-GAY
MODEL OD-446M (OD SERIES)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1950
ALTERNATE CIRCUIT
DOTTED IN SECTIONS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN SECTIONS ARE USED POINTS MARKED X ARE BROKEN.
PICTURE TUBE
Y20 16GP4
ION TRAP
BRIGHTNESS CONTROL
CONTRAST CONTROL 500K
HEIGHT CONT 2.5 MEG
VERT LIN. CONT 5K
VERT HOLD CONT.
HORIZ HOLD CONT
HORIZ. FREQ.
HORIZ. LOCK-IN RANGE
HORIZ. LOCKING
HORIZ. DRIVE
HORIZ CENT CONT
VERT CENT CONT
FOCUS CONT
WIDTH
HORIZ LIN.
DAMPER
FOCUS COIL
DEFLECTION YOKE
TONE CONT 500K
VOL CONT 500K
PHONO PLUG
FINE TUNING
BAND SW. SHOWN IN TV POS.
SW SEQUENCE
TV
FM
AM
PHONO
SW. ON VOL. CONT.
TO JUNCTION OF R36 & R37
TO JUNCTION OF R108A & R108B
TO PIN 2 OF V8
TO INTEG. NET
TO HORIZ A.F.C.
TV FM ANT
AM ANT
RF AMP
MIXER
OSC
1ST SOUND IF AMP
2ND SOUND IF AMP
LIMITER
DISC.
AF AMP
AUDIO OUTPUT
1ST VIDEO IF AMP
2ND VIDEO IF AMP
3RD VIDEO IF AMP
VIDEO DET.-AGC
VIDEO AMP
VIDEO OUTPUT
FM RF AMP
FM CONVERTER
AM CONVERTER
AM IF AMP
DETECTOR-AVC
SYNC. AMP
VERT. OSC - VERT. AMP.
HORIZ. AFC & OSC.
HORIZ. OUTPUT
LV RECT
HV RECT.
3/8 AMP
DAMPER
SECT 1
SECT 2
22.4 MC
21.25 MC
23.9 MC
24.5 MC

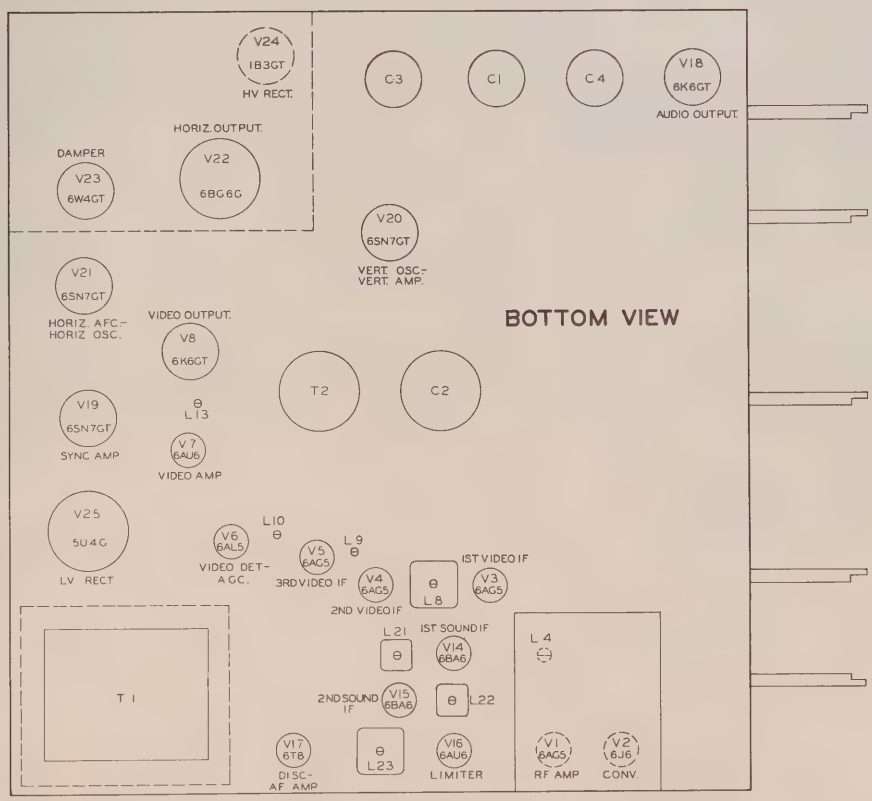


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If the set is to be aligned with the picture tube removed, the end of the high voltage lead should be securely taped and dressed away from the chassis.
Do not remove the horizontal oscillator tube.
Turn the function selector switch to "TV" (maximum clockwise).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over dummy mixer tube (V2). Low side to chassis.	22.4MC (Unmod.)	Any	DC Probe to Point (A) Common to chassis.	A1	Adjust for maximum deflection.
2.	Direct	"	23.9MC	"	"	A2	"
3.	Direct	"	26MC	"	"	A3	"
4.	Direct	"	24.25MC	"	"	A4	"
5.	Direct	"	21.25MC (maximum output)	"	"	A5, A6	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to ungrounded tube shield floating over dummy mixer tube (V2). Low side to chassis.	25MC (10MC SWP)	21.25MC 22.75MC 25.75MC	Any	Vert. Amp. to Point (A) Low side to chassis.		Check for response curve similar to figure 1 with markers as shown. If necessary retouch A1 thru A4 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V7). Low side to chassis.	Not used	4.5MC (400 ∿ Mod.)	Any	Vert. Amp. to pin 2 (Grid) of picture tube. Low side to chassis.	A7	Adjust for MINIMUM 400 ∿ indication on scope. If no scope is available, use a VTVM with an RF probe and adjust for minimum deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V16). Low side to chassis.	21.25MC (Unmod.)	Any	DC Probe thru 1 Meg. to Point (B). Common to chassis.	A8	Adjust for maximum deflection.
9.	.01MFD	"	"	"	DC Probe thru 1 Meg. to Point (C). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
10.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V14). Low side to chassis.	"	"	DC Probe thru 1 Meg. to Point (D). Common to chassis.	A10, A11, A12, A13	Adjust for maximum deflection.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V14). Low side to chassis.	21.25MC (450KC Sweep)	21.25MC	Any	Vert. Amp. thru 1 Meg. to Point (D). Low side to chassis.	A10, A11, A12, A13	Adjust for maximum amplitude and symmetry as per figure 2.
9.	.01MFD	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A9, A8	Adjust A9 so 21.25MC occurs at center of crossover lines as per figure 3. Adjust A8 for maximum amplitude and straightness of crossover lines. Continue with step 11.

OSCILLATOR ALIGNMENT

Replace the original converter tube (V2) in its socket.

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A14. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A14 will not bring all channels within the range of the fine tuning control, it will be necessary to adjust the individual channel oscillator adjustment for each channel that is off frequency. The individual channel oscillator adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment is accessible through this hole as the channel switch is turned to each channel.

Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC Probe to Point (C) Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A16	
			203.75MC	11		A17	
			197.75MC	10		A18	
			191.75MC	9		A19	
			185.75MC	8		A20	
			179.75MC	7		A21	
			87.75MC	6		A22	
			81.75MC	5		A23	
			71.75MC	4		A24	
			65.75MC	3		A25	
			59.75MC	2		A26	

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

The RF and mixer adjustments of this receiver has been pre-set at the factory and is very stable. Alignment of this portion should not be attempted unless it is definitely known to be out of alignment.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to Point E. Low side to chassis.	A27, A28, A29	Adjust for response curve similar to figure 4 with markers above 90%.
13.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check for response similar to figure 4. If markers fall below 70% on any channel, make slight adjustment of A27, A28 and A29 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 189.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

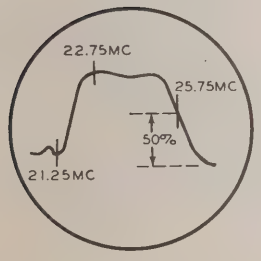


FIG.1

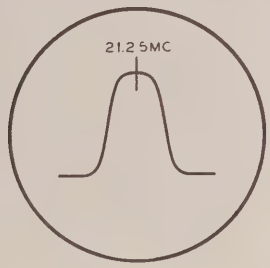


FIG. 2

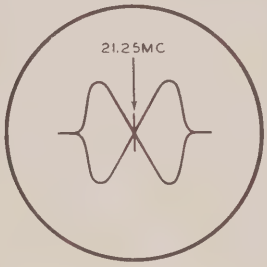


FIG. 3

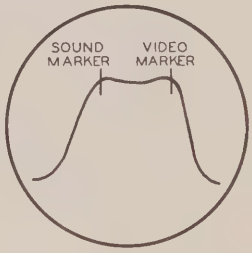


FIG. 4

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set the pointer even with the expanded end of the dial scale center-lines.

AM ALIGNMENT

Turn the function selector switch to AM (second position clockwise).
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
14.	.01MFD	High side to stator on "AM" antenna section of tuning gang. Low side to chassis.	455KC (400 ∿ Mod.)	AM	Tuning gang fully open	Across voice coil	A30, A31, A32, A33	Adjust for maximum output.
15		Loop	1600KC	"	1600KC	"	A34, A35	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM RF ALIGNMENT

Turn the function switch to "FM" (third position clockwise).
The converter plate coil A36 is peaked at 21.25MC in the same manner as the TV sound IF transformer. Connect the signal generator to pin 2 of 12AT7 (V10) and the VTVM or scope as outlined under "SOUND IF ALIGNMENT".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
16.	Two 120Ω carbon res.	Across "TV" antenna terminals with 120Ω in each lead.	108MC (Unmod.)	FM	108MC	DC Probe to Point D. Common to chassis.	A37	Adjust for maximum deflection.
17.	"	"	96MC (Unmod.)	"	96MC	"	A38, A39	"

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-4.8VDC	0V	6.3VAC	0V.	135VDC	135VDC	0V.		
V 2	6J6	75VDC	135VDC	6.3VAC	0V.	-.8VDC	§-4.4VDC	0V.		
V 3	6AG5	-5.5VDC	0V.	6.3VAC	0V.	135VDC	135VDC	0V.		
V 4	6AG5	-5.7VDC	0V.	0V.	6.3VAC	135VDC	135VDC	0V.		
V 5	6AG5	0V:	1.3VDC	0V.	6.3VAC	90VDC	135VDC	1.3VDC		
V 6	6AL5	0V.	-.6VDC	0V.	6.3VAC	0V.	0V.	-.2VDC		
V 7	6AU6	-.6VDC	0V.	0V.	6.3VAC	260VDC	135VDC	0V.		
V 8	6K6GT	-5.7VDC	0V.	220VDC	135VDC	-1.5VDC	0V.	6.3VAC	0V.	
† V 9	6AG5	0V.	1.6VDC	0V;	6.3VAC	120VDC	160VDC	1.6VDC		
† V 10	12AT7	160VDC	0V.	3.4VDC	6.3VAC	6.3VAC	160VDC	§-3.6VDC	0V.	0V.
# V 11	6BE6	§-16.4VDC	0V.	0V.	6.3VAC	145VDC	145VDC	.1VDC		
# V 12	6BA6	.2VDC	0V.	0V.	6.3VAC	145VDC	145VDC	2.2VDC		
# V 13	6AL5	0V.	0V.	0V.	6.3VAC	0V.	0V.	-2.6VDC		
V 14	6BA6	0V.	0V.	0V.	6.3VAC	115VDC	115VDC	.8VDC		
V 15	6BA6	0V.	0V.	0V.	6.3VAC	115VDC	115VDC	.8VDC		
V 16	6AU6	-.4VDC	0V.	0V.	6.3VAC	130VDC	80VDC	0V.		
V 17	6T8	-.4VDC	-.4VDC	0V.	6.3VAC	0V.	0V.	0V.	-.4VDC	60VDC
V 18	6K6GT	0V.	0V.	175VDC	180VDC	0V.	0V.	6.3VAC	12VDC	
V 19	6SN7GT	0V.	11VDC	1.2VDC	11VDC	95VDC	13VDC	6.3VAC	0V.	
V 20	6SN7GT	-17VDC	85VDC 160VDC	0V.	-17VDC	380VDC	6.7VDC 100VDC	6.3 VAC	0V.	
V 21	6SN7GT	-2.3VDC	95VDC	-7.4VDC	-42VDC	165VDC	0V.	6.3VAC	0V.	
V 22	6BG6G	280VDC	0V.	0V.	Inf.	-9.8VDC	-9.8VDC	6.3VAC	260VDC	TOP CAP *
V 23	6W4GT	360VDC	0V.	460VDC	0V.	380VDC	420VDC	¶	¶	
V 24	1B3GT	* DO NOT MEASURE.								
V 25	5U4G	0V.	400VDC	0V.	370VAC	0V.	370VAC	140VDC	400VDC	
V 26	16DP4	¶	1.3VDC	PIN 10 420VDC	PIN 11 135VDC	PIN 12 ¶				

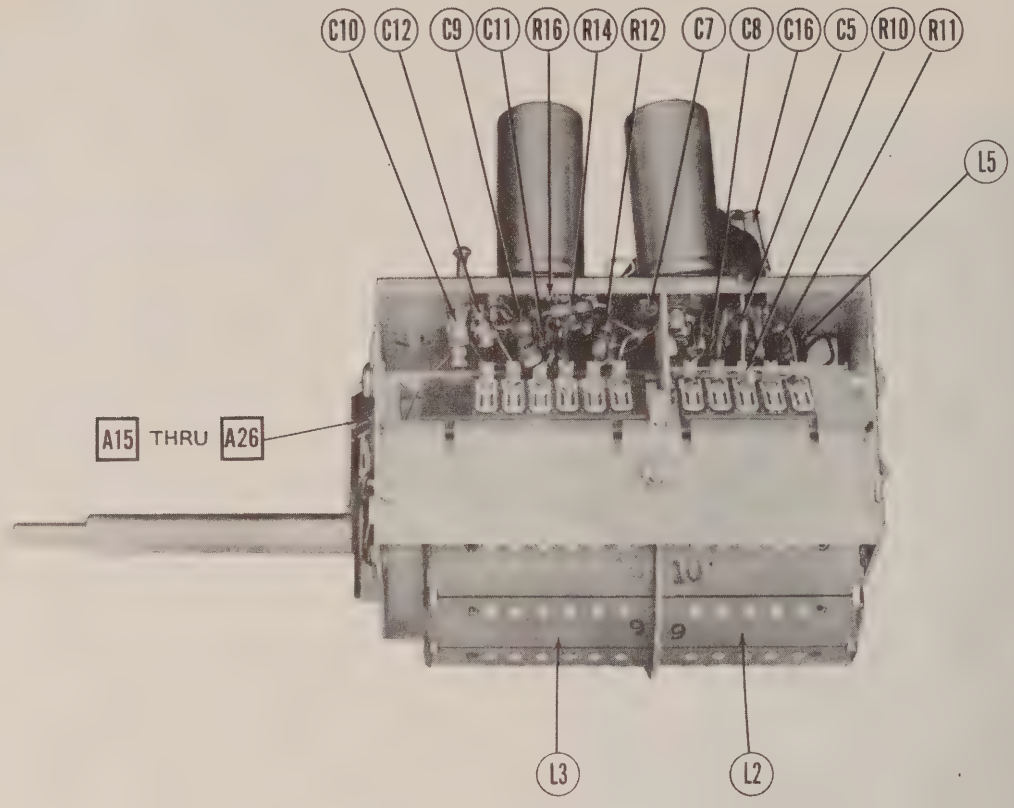
§ TAKEN WITH VACUUM TUBE VOLTMETER.
† TAKEN IN "FM" POSITION.
# TAKEN IN "AM" POSITION.
¶ 6.3VAC MEASURED ACROSS FILAMENTS.
* DO NOT MEASURE.

RESISTANCE READINGS

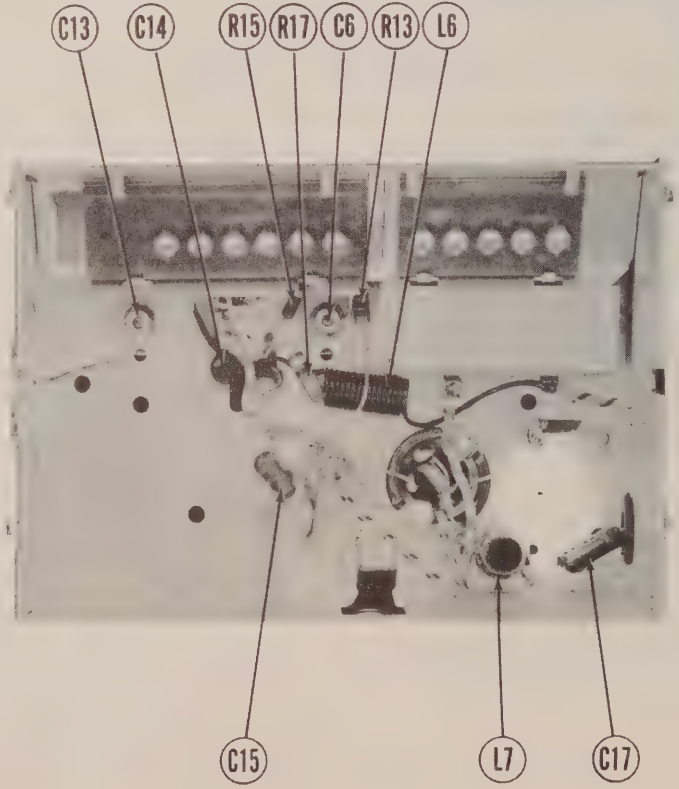
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	150KΩ	0Ω	.1Ω	0Ω	†4KΩ	†4KΩ	0Ω		
V 2	6J6	†7KΩ	†2KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AG5	116KΩ	39Ω	.1Ω	0Ω	†3KΩ	†3KΩ	39Ω		
V 4	6AG5	105KΩ	39Ω	0Ω	.1Ω	†3KΩ	†3KΩ	39Ω		
V 5	6AG5	15KΩ	150Ω	0Ω	.1Ω	†8.8KΩ	†2KΩ	150Ω		
V 6	6AL5	.2Ω	Inf.	0Ω	.1Ω	0Ω	0Ω	4.7KΩ		
V 7	6AU6	370KΩ	0Ω	0Ω	.1Ω	†4KΩ	†2KΩ	0Ω		
V 8	6K6GT	100KΩ	0Ω	†4.5KΩ	†2KΩ	1 Meg.	Inf.	.1Ω	0Ω	
† V 9	6AG5	0Ω	150Ω	0Ω	.1Ω	†6.7KΩ	†2KΩ	150Ω		
† V 10	12AT7	†2KΩ	0Ω	1000Ω	.1Ω	.1Ω	†2KΩ	10KΩ	0Ω	0Ω
# V 11	6BE6	22KΩ	.5Ω	0Ω	.1Ω	†2KΩ	†2KΩ	5.3 Meg.		
# V 12	6BA6	4.3 Meg.	0Ω	0Ω	.1Ω	†2KΩ	†2KΩ	150Ω		
# V 13	6AL5	0Ω	Inf.	0Ω	.1Ω	Inf.	0Ω	1 Meg.		
V 14	6BA6	.2Ω	0Ω	0Ω	.1Ω	†3KΩ	†3KΩ	47Ω		
V 15	6BA6	.2Ω	0Ω	0Ω	.1Ω	†3KΩ	†3KΩ	47Ω		
V 16	6AU6	47KΩ	0Ω	0Ω	.1Ω	†3KΩ	†25KΩ	0Ω		
V 17	6T8	100KΩ	100KΩ	200KΩ	.1Ω	0Ω	0Ω	0Ω	10 Meg.	†470KΩ
V 18	6K6GT	Inf.	0Ω	†8.5KΩ	†8.2KΩ	470KΩ	.5Ω	.1Ω	560Ω	
V 19	6SN7GT	0Ω	†60KΩ	82KΩ	†60KΩ	†7KΩ	1.5KΩ	.1Ω	0Ω	
V 20	6SN7GT	2 Meg.	▲1.5 Meg. ▲4 Meg.	0Ω	2.2 Meg.	†580Ω	5.5KΩ 560Ω	.1Ω	0Ω	
V 21	6SN7GT	700KΩ	▲300KΩ	300KΩ	200KΩ	▲120KΩ	0Ω	.1Ω	0Ω	
V 22	6BG6G	†725Ω	0Ω	0Ω	Inf.	1 Meg.	1 Meg.	.1Ω	†3KΩ	TOP CAP ▲125Ω
V 23	6W4GT	560KΩ	Inf.	▲0Ω	Inf.	†65Ω	▲10KΩ	Inf.	Inf.	
V 24	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ▲330Ω
V 25	5U4G	Inf.	14KΩ	Inf.	34Ω	Inf.	34Ω	10KΩ	14KΩ	
V 26	16DP4	Inf.	82KΩ	PIN 10 ▲10KΩ	PIN 11 180KΩ	PIN 12 Inf.				

† TAKEN IN "FM" POSITION.
# TAKEN IN "AM" POSITION.
▲ MEASURED FROM PIN 3 OF V23.
† MEASURED FROM PIN 8 OF V25.

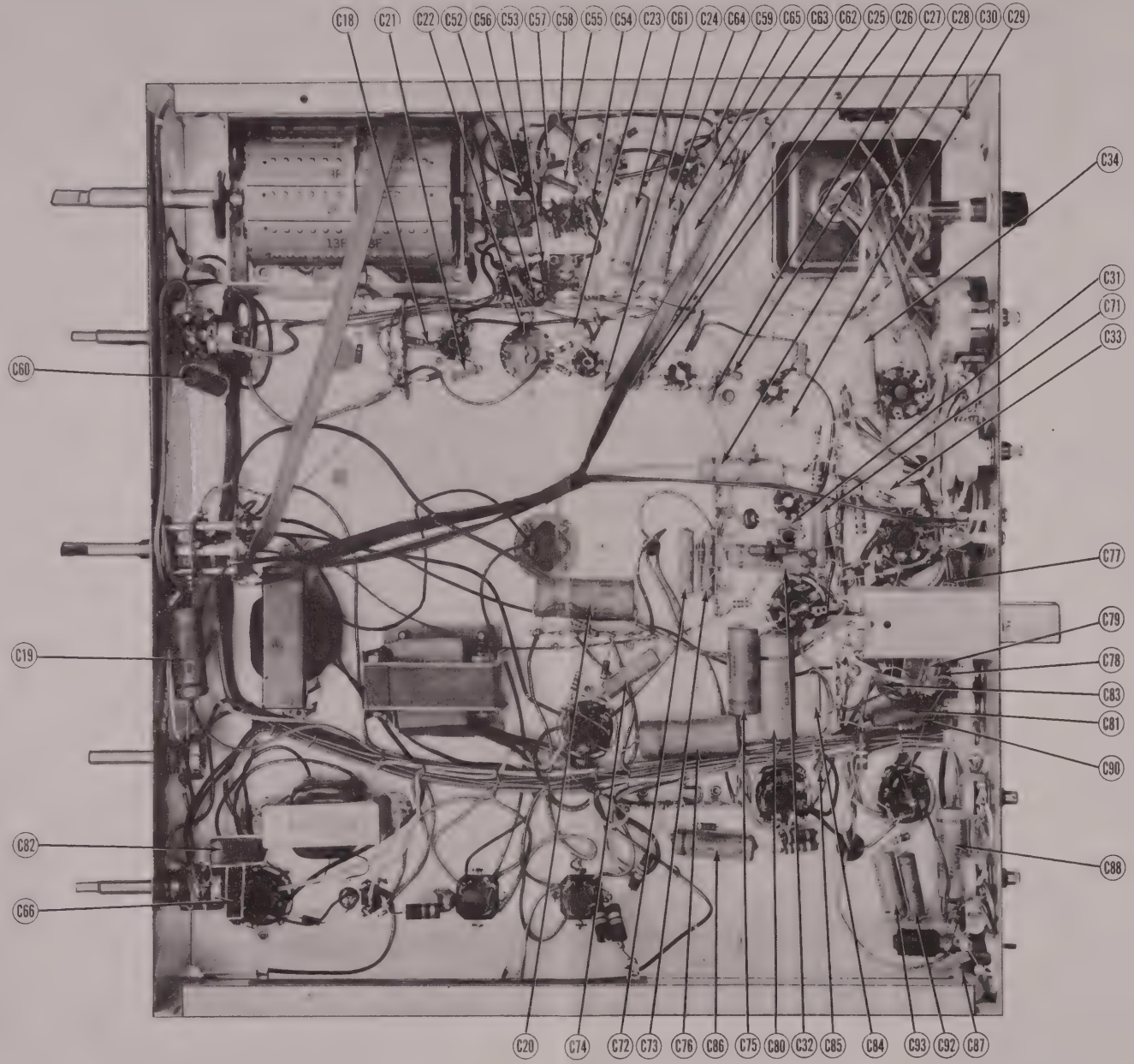
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



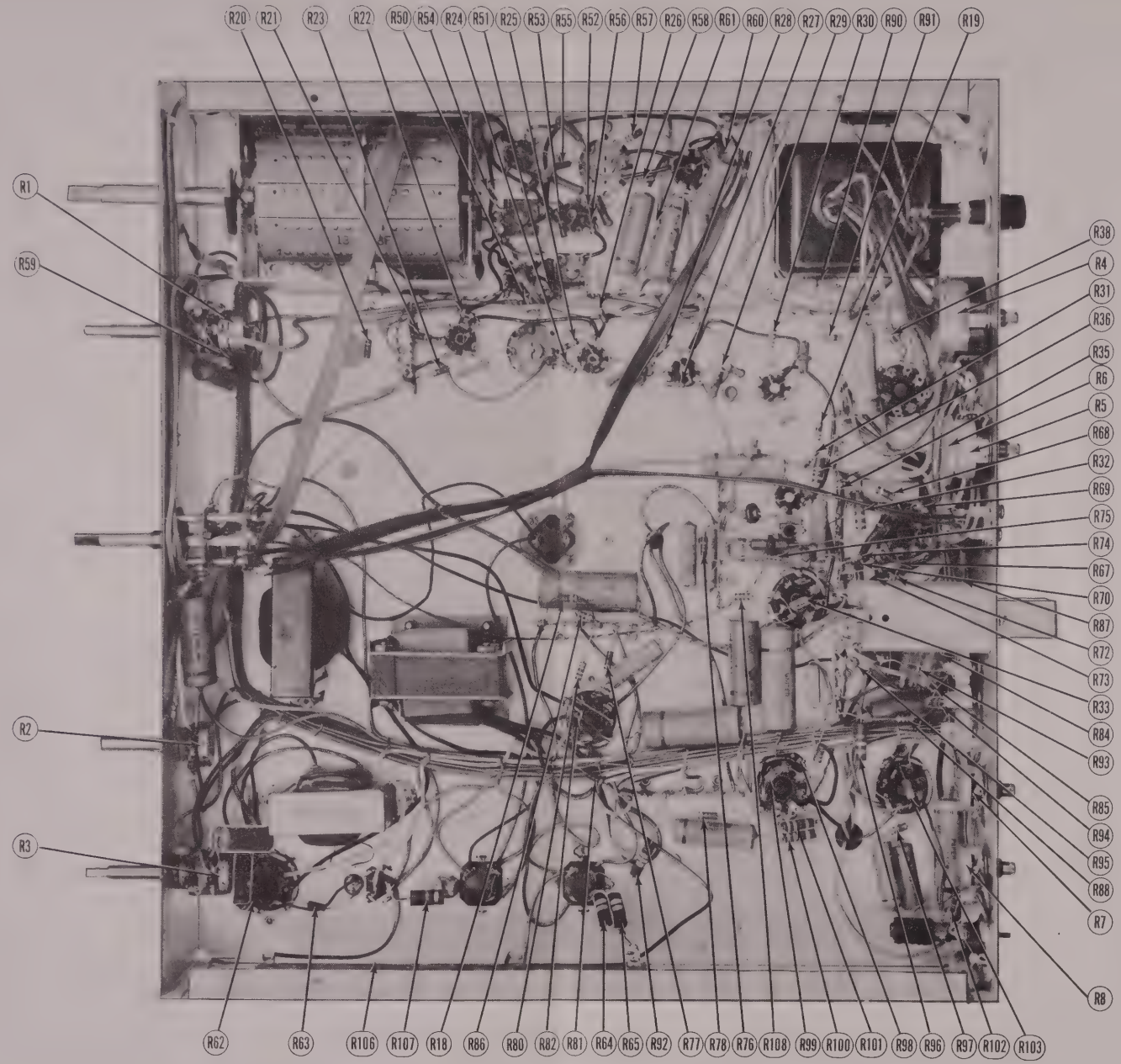
RF TUNER-RIGHT SIDE



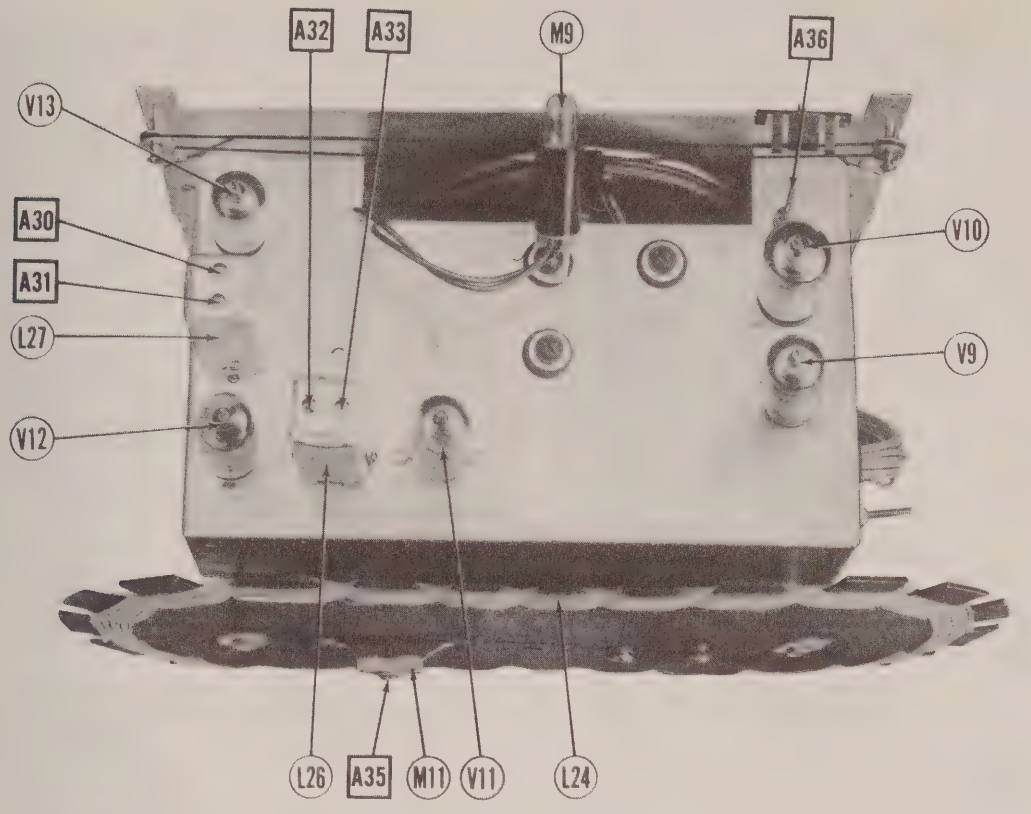
RF TUNER-BOTTOM VIEW



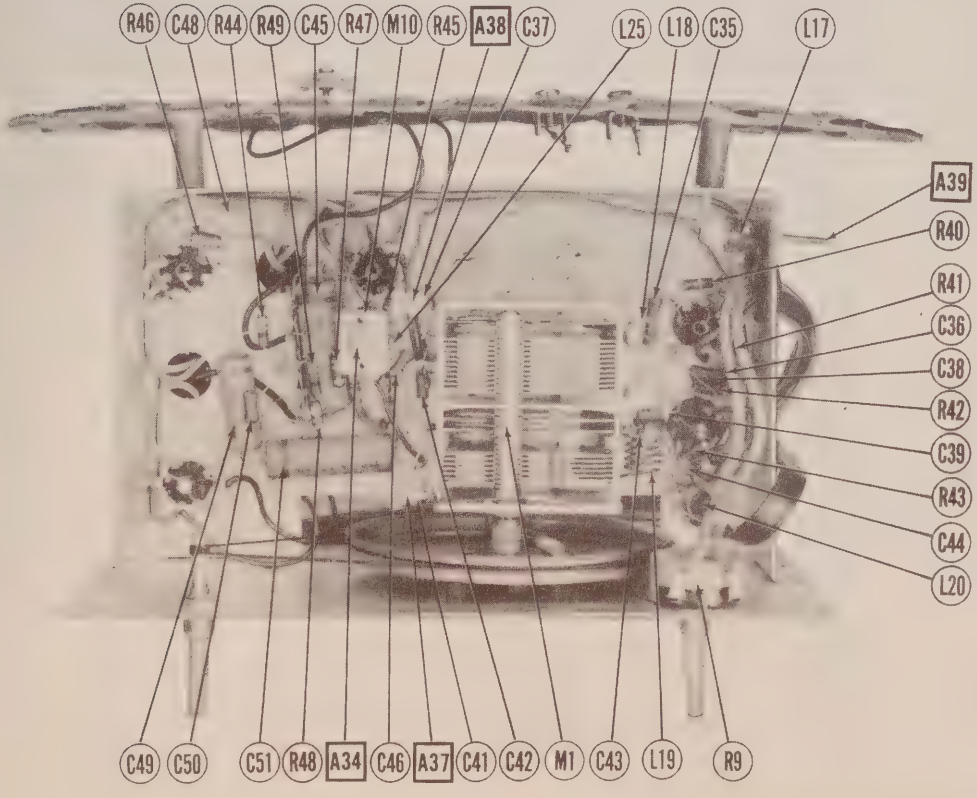
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RADIO TUNER -TOP VIEW



RADIO TUNER -BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WILCOX GAY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp		6AG5	7BD	
V2	Converter		6J6	7BF	
V3	1st Video IF		6AG5	7BD	
V4	2nd Video IF		6AG5	7BD	
V5	3rd Video IF		6AG5	7BD	
V6	Video Det. -AGC		6AL5	6BT	
V7	Video Amp.		6AU6	7BK	
V8	Video Output		6K6GT	7S	
V9	FM RF Amp.		6AG5	7BD	
V10	FM Converter		12AT7	9A	
V11	AM Converter		6BE6	7CH	
V12	AM IF Amp.		6BA6	7BK	
V13	Det. AVC		6AL5	6BT	
V14	1st Sound IF		6BA6	7BK	
V15	2nd Sound IF		6BA6	7BK	
V16	Limiter		6AU6	7BK	
V17	Disc. -AF Amp.		6T8	9E	
V18	Audio Output		6K6GT	7S	
V19	Sync. Amp.		6SN7GT	8BD	
V20	Vert. Osc. -Vert. Amp.		6SN7GT	8BD	
V21	Hor. AFC-Hor. Osc.		6SN7GT	8BD	
V22	Hor. Output		6BG6G	5BT	
V23	Damper		6W4GT	4CG	
V24	HV Rect.		1B3GT	3C	
V25	LV Rect.		5U4G	5T	
V26	Picture Tube		16DP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WILCOX GAY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450		AFH883J		UP9CJ897		TVL-30	▲ Filter
B	40	450							■ Filter
C	10	450							▲ Filter
C2A	250	10		AF50R200S		UP7BJ808		TVL-66	▲ Hor. Cent. Cont. Byp.
B	250	6							▲ Vert. Cent. Cont. Byp.
C3A	40	450		AF8422J		UP9DJ1157		TVL-40	▲ Filter
B	20	450							■ Output Decoupling
C	10	450							▲ Decoupling
D	10	450							Decoupling
C4A	40	150		AF8D26P5A		UP6CJ1158		TVL-57	■ Filter
B	130	15							▲ Vert. Output Cath. Byp
C	25	25							Output Cath. Byp.
C5	5			SI5DNPO	D2-4.7		NPO1K-5		Fixed Trimmer
C6	5-3				829-3				Variable Trimmer
C7	120			GP12OK	D6-121		GP2K-120		RF Decoupling
C8	1000			GP1000M	D6-102		GP2L-001		RF Filament Bypass
C9	100			SH00KN750	DN-100		GP1K-100		RF Coupling
C10	.5-3				829-3				Variable Trimmer
C11	20			SI20KNPO	D2-20		GP1K-20		Osc. Grid Cap.
C12	10			SI10DN750	DN-10		N750K-10		Fixed Trimmer
C13	.5-3				829-3				Variable Trimmer
C14	1000			GP1000M	D6-102		GP2L-001		Mixer Fil. Bypass
C15	1000			GP1000M	D6-102		GP2L-001		RF Bypass
C16	68			CN68JNPO	D2-68		NPOM-68		Fixed Trimmer
C17	120	300		GP12OK	D6-121		GP1K-120		IF Coupling
C18	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	Bias Filter
C19	.1	600		P688-1		PTE6P1		TM-1	Bias Filter
C20	.5	200		P288-5		GT2P5		TC-5	Bias Filter
C21	1500			GP1500M	D6-152	1W5D5	GP2L-0015	1FM-215	1st V. IF Decoup.
C22	270			GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C23	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	Bias Filter
C24	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoup
C25	270			GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C26	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	3rd V. IF Cath. Byp.
C27	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass
C28	270			GP270M	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C29	10			GP10M	D6-100	5W5Q1	GP1K-10	MS-41	V. Diode Filter
C30	.05	600		P688-05		PTE6S5		TM-15	Video Coupling
C31	47	300		1469-00005	D2-47	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C32	.05	600		P688-05		PTE6S5		TM-15	Video Coupling
C33	1	400		P488-1		PTE4P1		TM-1	Video Coupling
C34	.05	600		P688-05		PTE6S5		TM-15	Pic. Tube Cath. Byp.
C35	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	FM RF Cath. Byp.
C36	4.7			GP5K	D2-4.7	5W5V5	NPOK-4.7	MS-55	RF Coupling
C37	1-8						532-1-8		Variable Trimmer
C38	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	Conv. Cath. Byp.
C39	47			GP47M	D6-470	5W5Q5	GP1K-47	1FM-45	Osc. Grid Cap.
C40	5			SI5DNPO	D2-4.7	5R5V5	NPOK-5	MS-55	Fixed Trimmer *
C41	1-8						532-1-8		Variable Trimmer
C42	1				D2-1				Osc. Coupling
C43	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass
C44	85			CN85JNPO	D2-85		NPOM-85		Fixed Trimmer
C45	.05	600		P688-05		PTE6S5		TM-15	AVC Filter
C46	100			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	Osc. Grid Cap.
C47	.05	600		P688-05		PTE6S5		TM-15	RF Bypass *
C48	.05	600		P688-05		PTE6S5		TM-15	IF Cath. Byp.
C49	.02	600		P688-02		PTE6S2		TM-12	AVC Filter
C50	100			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C51	.05	600		P688-05		PTE6S5		TM-15	Audio Coupling
C52	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st S. IF Cath. Byp.
C53	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	1st S. IF Decoupling
C54	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd S. IF Cath. Byp.
C55	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	2nd S. IF Decoupling
C56	47			GP47M	D6-470	5W5Q5	GP1K-47	1FM-45	Limiter Grid Filter
C57	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	Limiter Screen Byp.
C58	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	Limiter Plate Dec.
C59	270			GP270M	D6-271	5W5T25	GP2K-270	1FM-325	RF Bypass
C60	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Tone Comp.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WILCOX-GAY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C61	.05	600		P688-05		PTE6S5		TM-15	Audio Coupling
C62	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Audio Coupling
C63	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Tone Comp.
C64	.05	600		P688-05		PTE6S5		TM-15	Audio Coupling
C65	270			GP270M	D6-271	5W5T25	GP2K-270	1FM-325	AF Amp. Plate Byp.
C66	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Output Plate Byp.
C67	.05	600		P688-05		PTE6S5		TM-15	Sync. Coupling *
C68	68			GP68M	D6-680	5W5Q7	GP1K-68	MS-47	Sync. Amp. Plate Byp. *
C69	100			GP100M	D6-101	5W5T1	GP1K-100	1FM-31	Sync. Coupling *
C70	390			GP390M	D6-391	5W5T4	GP2K-390	1FM-34	Sync. Sep. Cath. Byp. *
C71	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	TM-22	Integrator Net.
C72	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.
C73	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	Integrator Net.
C74	.005	600		P688-005	D6-502	PTE6D5	811-005	TM-25	Vert. Osc. Grid Cap.
C75	.1	600		P688-1		PTE6P1		TM-1	Vert. Discharge
C76	.25	600		684-25		GT6P25		TC-2	Vert. Sweep Coupling
C77	270	500		1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Hor. Sync. Coupling
C78	120			GP12OK	D6-121	5W5T15	GP2K-120	1FM-315	Voltage Divider
C79	2200	500		1467-002	D6-222	1W5D2	GP2M-0022	1FM-22	Hor. Sync. Coupling
C80	.25	600		684-25		GT6P25		TC-2	AFC Filter
C81	.02	600		P688-02		PTE6S2		TM-12	AFC Filter
C82	.05	600		P688-05		PTE6S5		TM-15	Hor. AFC Plate Byp.
C83	180			GP180K	D6-181	5W5T2	GP2K-180	1FM-32	Hor. Osc. Grid Cap.
C84	2200	500			D6-222		GP2M-0022		Hor. Discharge
C85	390			GP390K	D6-391	5W5T4	GP2K-390	1FM-34	Hor. Sweep Coupling
C86	.05	600		P688-05		PTE6S5		TM-15	Hor. Output Screen Byp.
C87	.035	600		P688-033					Damper Filter
C88	.1	600		P688-1		PTE6P1		TM-1	Damper Filter
C89	.05	600		P688-05		PTE6S5		TM-15	Fixed Trimmer
C90	5			GP5K	D2-4.7	5W5V5	GP1K-5	MS-55	Hor. Feedback
C91	500	15000			TV1-502				HV Filter
C92	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Line Filter
C93	.01	600		P688-01	D6-103	PTE6S1	811-01	TM-11	Line Filter
C94	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	Filament Bypass *
C95	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass *
C96	1500			GP1500M	D6-152	1W5D15	GP2L-0015	1FM-215	RF Bypass *

* Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Wilcox Gay PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½		B11-133 *			Brightness control-front
B	500KΩ	½		B18-133X *			Volume control-rear-tapped at 50KΩ
C	Shaft End			E-187 *			Attach per instructions in "concentrikit"
D	Switch			76-1 *			Attach per instructions in "concentrikit"
R2	500KΩ	½		Q11-133	M-58-S	B-59	Contrast control
R3A	1 Meg.	½		B11-137 *			Vert. hold control-front
B	50KΩ	½		B11-123 *			Horiz. hold control-rear
C	Shaft End			E-187 *			Attach per instructions in "concentrikit"
R4	1500Ω	4			58-2000	V-131	Focus control-Wire Wound
R5	200	2		W-20	43-20	V-110	Horiz. centering control-Wire Wound
R6	200	2		W-20 x 10	43-20 CT	SVT-901	Vert. centering control-Wire Wound-tapped at 10Ω
R7A	5000Ω	½		Q11-114	M-19-S	AN-10	Vert. linearity control
B	Shaft			Not Req.	Not. Req.	AK-1	Attach to R7A per instructions
R8A	2.5 Meg.	½		Q11-239	M-84-S	AN-83	Height control
B	Shaft			Not Req.	Not Req.	AK-1	Attach to R8A per instructions
R9	500KΩ	½		Q11-133	M-58-S	B-59	Tone control

* Additionals parts to be used with "Concentrikit"

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WILCOX GAY PART No.	IRC PART No.	IDENTIFICATION CODES
R10	3900Ω	½		BTS-3900	Ant. Coil Shunt
R11	47KΩ 20%	½		BTS-47K	Bias Network
R12	10KΩ	½		BTS-10K	RF Plate Coil Shunt
R13	2200Ω	½		BTS-2200	RF Decoupling
R14	4700Ω	½		BTS-4700	Conv. Grid
R15	220KΩ	½		BTS-220K	Conv. Grid
R16	10KΩ	½		BTS-10K	Osc. Grid
R17	4700Ω	½		BTS-4700	Osc. Plate
R18	100KΩ	½		BTS-100K	Bias Network
R19	100KΩ	½		BTS-100K	Bias Network
R20	1000Ω	½		BTS-1000	Bias Network
R21	15KΩ	½			1st Video IF Grid
R22	39Ω	½			1st Video IF Cathode
R23	1000Ω	½		BTS-1000	1st Video IF Decoupling
R24	5600Ω	½			2nd Video IF Grid
R25	39Ω	½			2nd Video IF Cathode
R26	1000Ω	½		BTS-1000	2nd Video IF Decoupling
R27	15KΩ	½			3rd Video IF Grid
R28	150Ω	½			3rd Video IF Cathode
R29	6800Ω	½			3rd Video IF Plate
R30	4700Ω	½		BTS-4700	Video Det. Diode Load
R31	270KΩ 5%	1		BTS-270K-5%	Video Amp. Grid-See Note 1
R32	3300Ω	1		BTA-3300	Video Amp. Plate
R33	1 Meg.	½		BTS-1 Meg.	Video Output Grid
R34	330Ω	½			Video Output Cathode-See Note 2
R35	1000Ω	½		BTS-1000	Video Output Plate-See Note 2
R36	2400Ω 5%	1			Video Output Plate
R37	1000Ω	½		BTS-1000	Video Output Plate-See Note 2
R38	180KΩ	½		BTS-180K	Voltage Divider-See Note 2
R39	270KΩ	½		BTS-270K	Voltage Divider-See Note 2
R40	150Ω	½			FM RF Cathode
R41	4700Ω	½		BTS-4700	FM RF Plate
R42	1000Ω	½		BTS-1000	FM Conv. Cathode
R43	10KΩ	½		BTS-10K	FM Osc. Grid
R44	1 Meg.	½		BTS-1 Meg.	AVC Network
R45	22KΩ	½		BTS-22K	AM Osc. Grid
R46	150Ω	½		BW-½-150	AM IF Cathode
R47	3.3 Meg.	½		BTS-3.3 Meg.	AVC Network
R48	47KΩ	½		BTS-47K	Diode Filter

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WILCOX-GAY PART No.	IRC PART No.	IDENTIFICATION CODES
R49	1 Meg.	½		BTS-1 Meg.	Diode Load
R50	47Ω	½			1st Sound IF Cathode
R51	1000Ω	½		BTS-1000	1st Sound IF Decoupling
R52	47Ω	½			2nd Sound IF Cathode
R53	1000Ω	½		BTS-1000	2nd Sound IF Decoupling
R54	47KΩ	½			Limiter Grid
R55	22KΩ	½			Limiter Screen
R56	1000Ω	½		BTS-1000	Limiter Decoupling
R57	100KΩ	½		BTS-100K	Disc. Diode Load
R58	100KΩ	½		BTS-100K	Disc. Diode Load
R59	22KΩ	½		BTS-22K	Tone Compensation
R60	10 Meg. 20%	½		BTS-10 Meg.	AF Amp. Grid
R61	470KΩ	½		BTS-470K	AF Amp. Plate
R62	470KΩ	½		BTS-470K	Output Grid
R63	560Ω	½		BTS-560	Output Cathode
R64	15KΩ	2		BT-2-15K	Output Decoupling-See Note 3
R65	15KΩ	2		BT-2-15K	Output Decoupling-See Note 2
R66	1 Meg.	½		BTS-1 Meg.	Sync. Amp. Grid-See Note 2
R67	82KΩ	½		BTS-82K	Sync. Amp. Cathode
R68	1 Meg.	½		BTS-1 Meg.	Sync. Amp. Plate
R69	47KΩ	½		BTS-47K	Voltage Divider-See Note 2
R70	1500Ω	½		BTS-1500	Sync. Sep. Cathode-See Note 4
R71	3.9 Meg.	½		BTS-3.9 Meg.	Sync. Sep. Grid-See Note 2
R73	2200Ω	½		BTS-2200	Sync. Sep. Plate-See Note 2
R73	2200Ω	½		BTS-2200	Sync. Sep. Plate-See Note 2
R74	22KΩ	½		BTS-22K	Integrator Network
R75	8200Ω	½		BTS-8200	Integrator Network
R76	8200Ω	½		BTS-8200	Integrator Network
R77	1 Meg.	½		BTS-1 Meg.	Vert. Osc. Grid
R78	1.5 Meg.	½		BTS-1.5 Meg.	Vert. Osc. Plate
R79	6.8 Meg.	½		BTS-6.8 Meg.	Voltage Divider-See Note 2
R80	100KΩ	½		BTS-100K	Voltage Divider-See Note 2
R81	560Ω	½		BTS-560	Vert. Amp. Cathode
R82	2.2 Meg.	½		BTS-2.2 Meg.	Vert. Amp. Grid
R83	1000Ω	½		BTS-1000	Vert. Amp. Decoupling-See Note 2
R84	560KΩ	½		BTS-560K	Horiz. AFC Grid
R85	180KΩ	½		BTS-180K	Horiz. AFC Cathode
R86	82KΩ	½		BTS-82K	Horiz. AFC Cathode
R87	33KΩ	½		BTS-33K	Bias Network
R88	8200Ω	½		BTS-8200	Horiz. AFC Filter Network
R89	3.3 Meg.	½		BTS-3.3 Meg.	Voltage Divider
R90	33KΩ	½			Voltage Divider Temp. Compensating
R91	100KΩ	½		BTS-100K	Voltage Divider
R92	270KΩ	1		BTA-270K	Voltage Divider
R93	150KΩ	½		BTS-150K	Horiz. AFC Filter Network
R94	100KΩ	1		BTA-100K	Horiz. Osc. Grid
R95	10KΩ	½		BTS-10K	Horiz. Osc. Transformer Shunt
R96	120KΩ	1		BTA-120K	Horiz. Osc. Plate
R97	10KΩ	½		BTS-10K	Filter
R98	47Ω	½			Parasitic Supp.
R99	1 Meg.	½		BTS-1 Meg.	Horiz. Output Grid
R100	4700Ω	1		BTA-4700	Horiz. Output Screen
R101	4700Ω	1		BTA-4700	Horiz. Output Screen-See Note 2
R102	56KΩ	½		BTS-56K	Decoupling
R103	560KΩ	½		BTS-560K	Feedback
R104	2.2Ω	2			HV Rect. Filament
R105	560KΩ	1			HV Filter
R106A	650Ω	10			Filter-Wire Wound
B	1350Ω	15			Filter-Wire Wound
R107	10KΩ	2		BT-2-10K	Bleeder
R108	3300Ω	½		BTS-3300	Vert. Peaking

Note 1. Some models use 1 Meg. resistor in this application.
Note 2. Not used in all models.
Note 3. Some models use 6800Ω resistor in this application.
Note 4. Some models use 68KΩ resistor in this application.

TRANSFORMER (POWER)

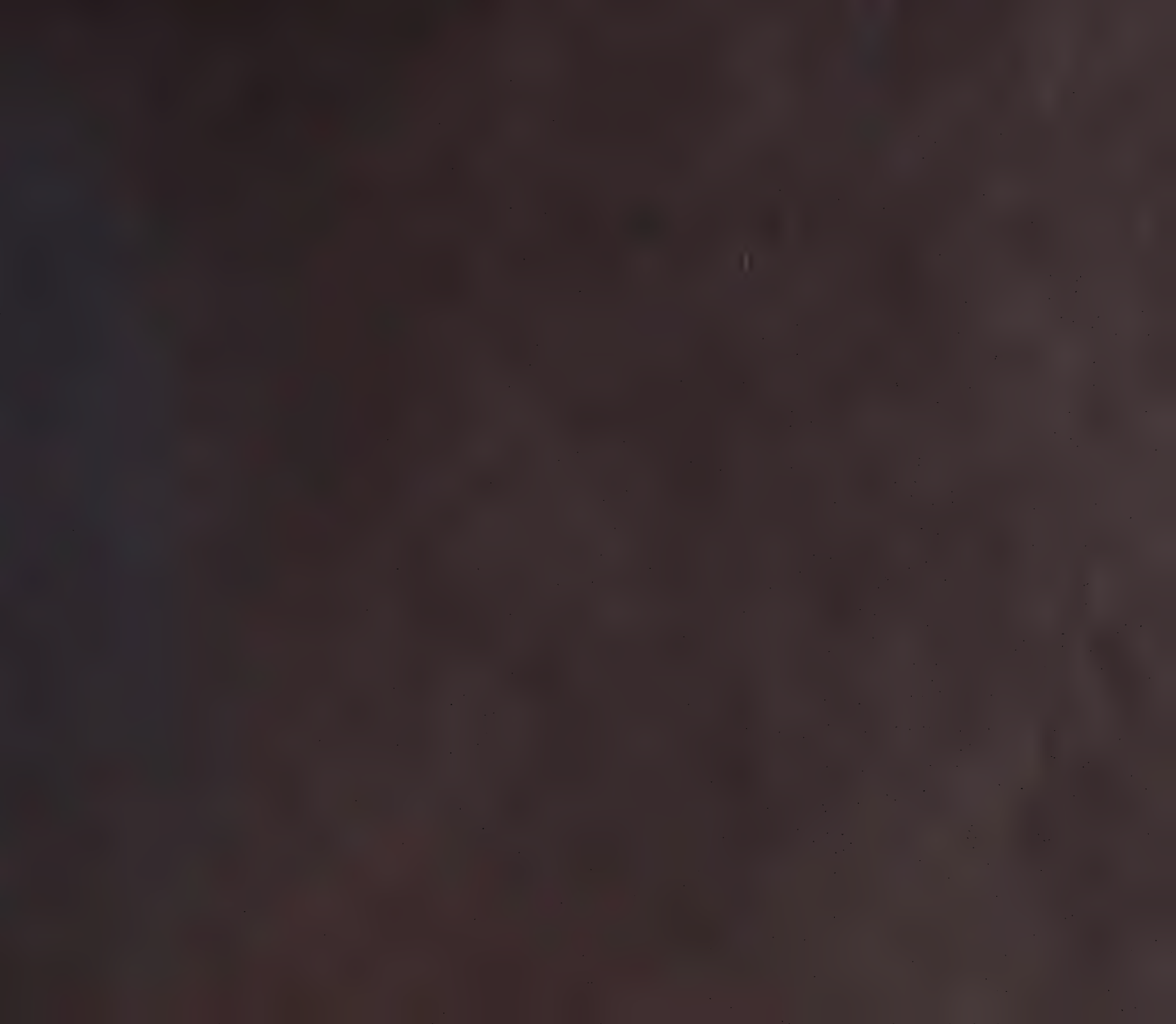
ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: WILCOX GAY PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC @ 1.9A	720VCT .240ADC	5VAC @ 3A	6.3VAC @ .6A SEC. 4 6.3VAC @ 1.2A SEC. 5 6.3VAC @ 8A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: WILCOX GAY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	16Ω	915Ω		A-8121	A-4000	TBO-1	Vert. Block Osc. Trans.
T3	280Ω Tap ④ 90Ω	9.1Ω Tap ④ .6Ω SEC. 2 0Ω		A-8128	HVO-5 ⑤	TFB-4	Hor. Output Trans.
T4	1700Ω	6.5Ω		A-8115 ③	A-3035 ①	TSO-5 ③	Vert. Output Trans.
T5A	11Ω			DY-1	MD-12		Hor. Deflection Coil
B	63Ω						Vert. Deflection Coil
T6	400Ω						Focus coil

① Drill new mounting holes.
③ File mounting holes in chassis to fit replacement.
⑤ Use only one filament winding.

WILCOX-GAY
MODEL OD-446M (OD SERIES)



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WILCOX GAY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	8.8KΩ	4.3Ω	350Ω	.5Ω		A-3824	A-3020 ④	RO-16 ④	④ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	WILCOX GAY PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	4.3Ω		ST-102 ⑥ MOD. P12-S	12A4A	⑥ Replace output transformer to match 6-8Ω voice coil
	CONE DIA.	V. C. DIA.				
SP2	11 1/2"	1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	Wilcox Gay PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.240A	59Ω	2.2 Henry		A-2325 ♦	C-2991	TR-3300 ♦	♦ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	WILCOX GAY PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω	0Ω			
L3	RF Plate, Mixer Grid, Osc. Coils	0Ω				
L4	Conv. Trans.	.2Ω	.2Ω			FM input winding .2Ω
L5	Fil. Choke	0Ω				
L6	Fil. Choke	0Ω				
L7	1st Video IF	.2Ω				
L8	2nd Video IF	.2Ω	.2Ω	ZV320T		
L9	3rd Video IF	.2Ω				
L10	4th Video IF	.2Ω				
L11	Peaking	5.2Ω			19-1921 †	120 microhenries, wound on 22KΩ resistor
L12	Peaking	3Ω				36 microhenries
L13	4.5MC Trap	2.2Ω				
L14	Peaking	5.3Ω			19-1921 †	120 microhenries, wound on 22KΩ resistor
L15	Peaking	4.9Ω			19-1920	93 microhenries
L16	Peaking	5.3Ω			19-1921 †	120 microhenries, wound on 22KΩ resistor
L17	FM Ant.	.1Ω	.1Ω			Primary center tapped
L18	FM RF	0Ω				
L19	FM Osc.	0Ω				
L20	FM IF	.2Ω	.2Ω			
L21	2nd Sound IF	.2Ω	.2Ω	ZS337-L		
L22	3rd Sound IF	.2Ω	.2Ω	A2016		
L23	Disc. Trans.	.2Ω	.2Ω	ZF340		
L24	Loop Ant.	.5Ω	1.5Ω			
L25	AM Osc.	6.7Ω			14-1073	Tapped at 1Ω
L26	1st AM IF	13Ω	13Ω	SM118	16-6678	
L27	2nd AM IF	13Ω	13Ω	SM118	16-6678	
L28	Horiz. Osc.	120Ω				Tapped at 33Ω
L29	Horiz. Lin.	36Ω				
L30	Horiz. Size	.5Ω				
L31	Peaking				19-1920	93 microhenries (Not used in all models)

† Add 22KΩ resistor in parallel.

MISCELLANEOUS

ITEM No.	PART NAME	WILCOX GAY PART No.	NOTES
M1	RF Tuner		
M2	Fuse		5A 250V
M3	Fuse		3/8A 250V Type AGC
M4	Ion Trap		
M5	Switch		Function
M6	Trimmer		Horiz. drive 40-370MMF
M7	Trimmer		Horiz. range 10-160MMF
M8	Trimmer		Horiz. freq. 40-370MMF
M10	Trimmer		AM Osc.
M11	Trimmer		Loop Ant.
M12	Tuning Cap.		

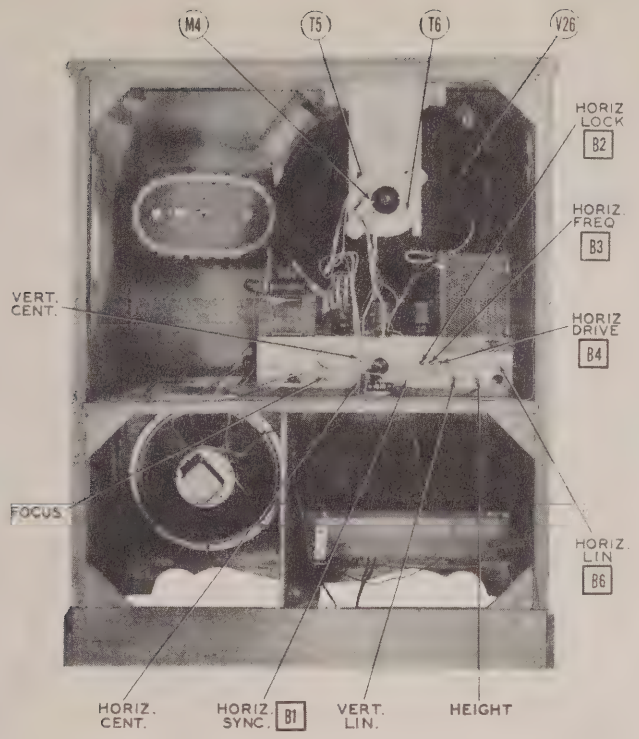
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					WILCOX GAY PART No.		
M9	Bayonet	6-8	.25	Blue			Type #44

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	WILCOX GAY PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M13		LQD-1J	"Q" "Q-33"			

ASTATIC AND SHURE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal oscillator slug (B1) until 3/4 ins. of threaded shaft protrudes out of the can.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal lock trimmer (B2) and the horizontal frequency trimmer (B3) until the picture synchronizes horizontally. The picture should remain in sync over 3/4 of the hold control range.

Adjust the horizontal drive trimmer (B4) for best compromise between width and horizontal linearity.

Adjust the width slug (B5) until the picture is of proper size horizontally.

Adjust the horizontal linearity slug (B6) until the picture is symmetrical from left to right. Readjustment of B4 may be necessary for optimum results.

DISASSEMBLY INSTRUCTIONS

TV CHASSIS

1. Remove eight push-on type control knobs from front of TV unit.
2. Remove ten phillips head screws holding rear cover. Remove cover.
3. Disconnect picture tube socket and deflection yoke plug.
4. Remove push-on type HV cap from picture tube. Remove yoke ground lead from HV cover.
5. Disconnect radio antenna plug mounted on TV tuner.
6. Remove radio and phono power and input plugs from TV chassis.
7. Loosen phillips head screw holding cable guide on side of TV chassis. Remove radio cable and phono ground lead.
8. Remove speaker plug from TV chassis.
9. Remove four phillips head bolts holding chassis at bottom. Remove chassis.

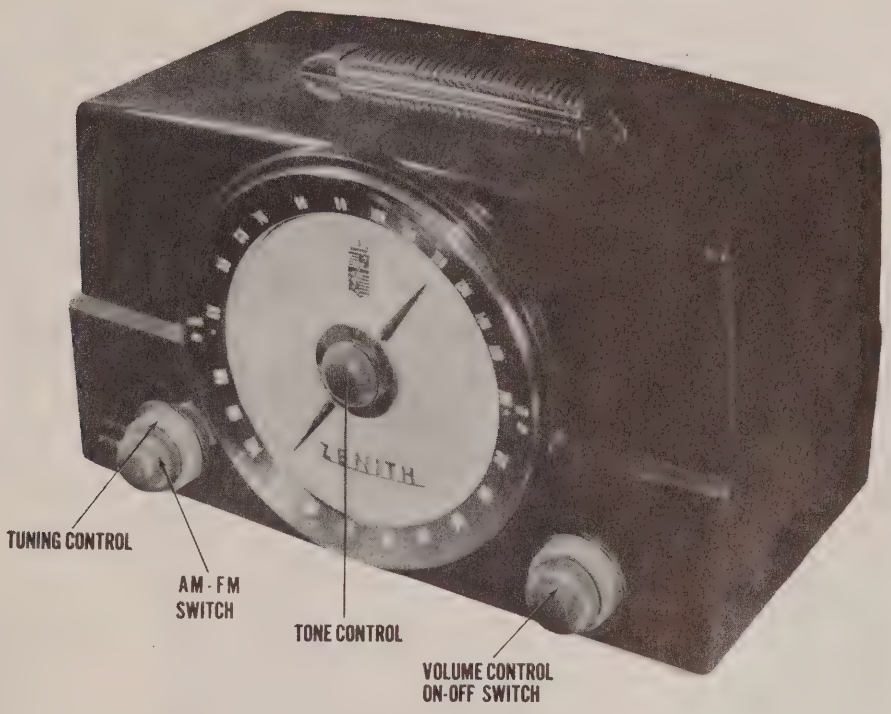
SPEAKER

1. Remove four 5/16" hex nuts holding speaker. Remove speaker.

RADIO CHASSIS

1. Remove two push-on type control knobs from front of radio unit.
2. Remove four 5/16" hex nuts holding chassis to cabinet front. Remove chassis.

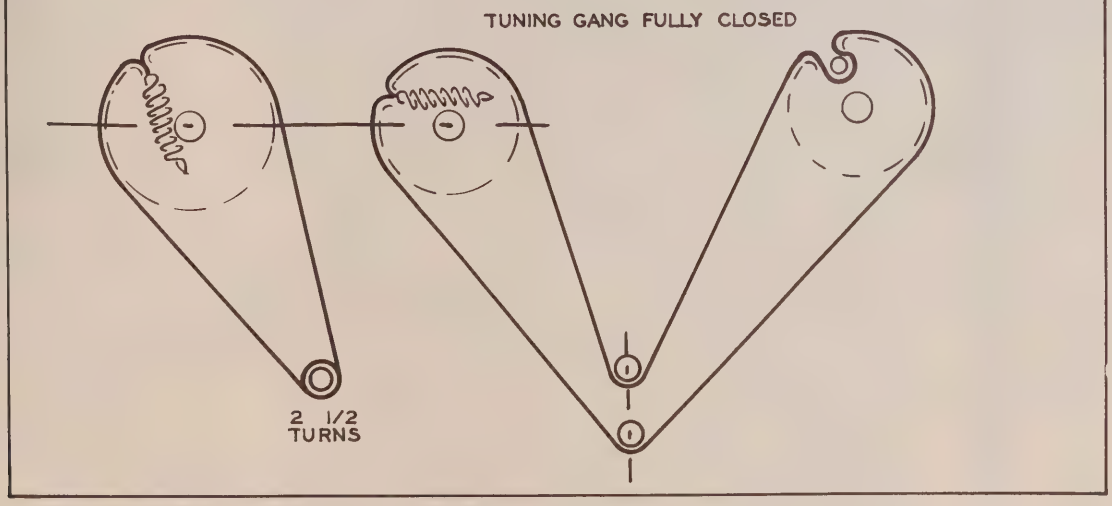
ZENITH
MODEL G725 (Ch. 7G01)



ZENITH
MODEL G725 (Ch. 7G01)

ZENITH MODEL G725

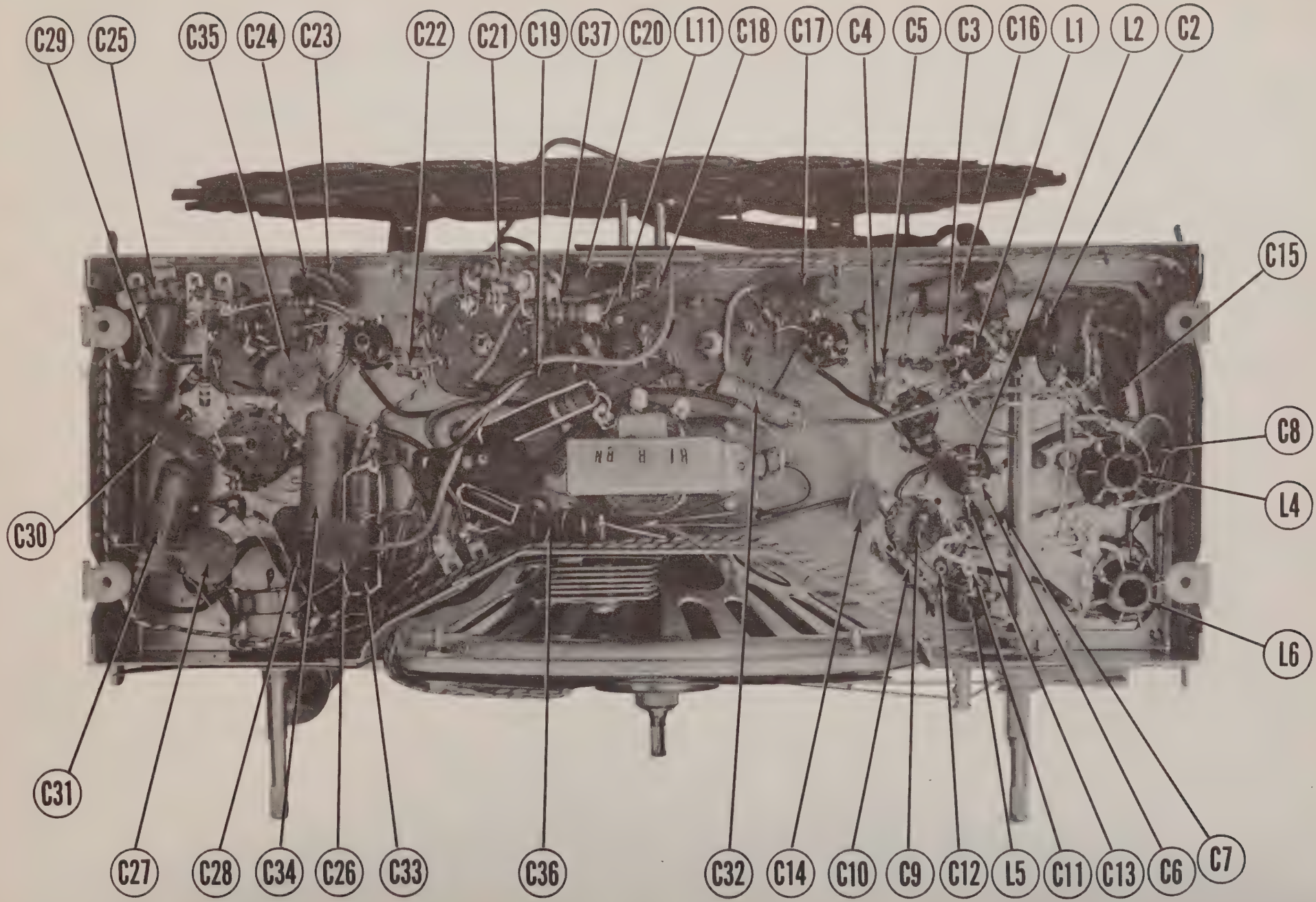
TRADE NAME	Zenith, Model G725 (Ch. 7G01)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Illinois		
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES (SEVEN)	Types 12BA6 RF Amp., 12AT7 Converter, 12BA6 1st IF Amp., 12BA6 2nd IF Amp., 12AU6 Limiter, 19T8 Disc.-DET-AVC-AF, 35B5 Power Output		
POWER SUPPLY	110-120 Volts AC-DC	RATING	.43 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	540-1620KC	FREQ. MOD.	88-108MC

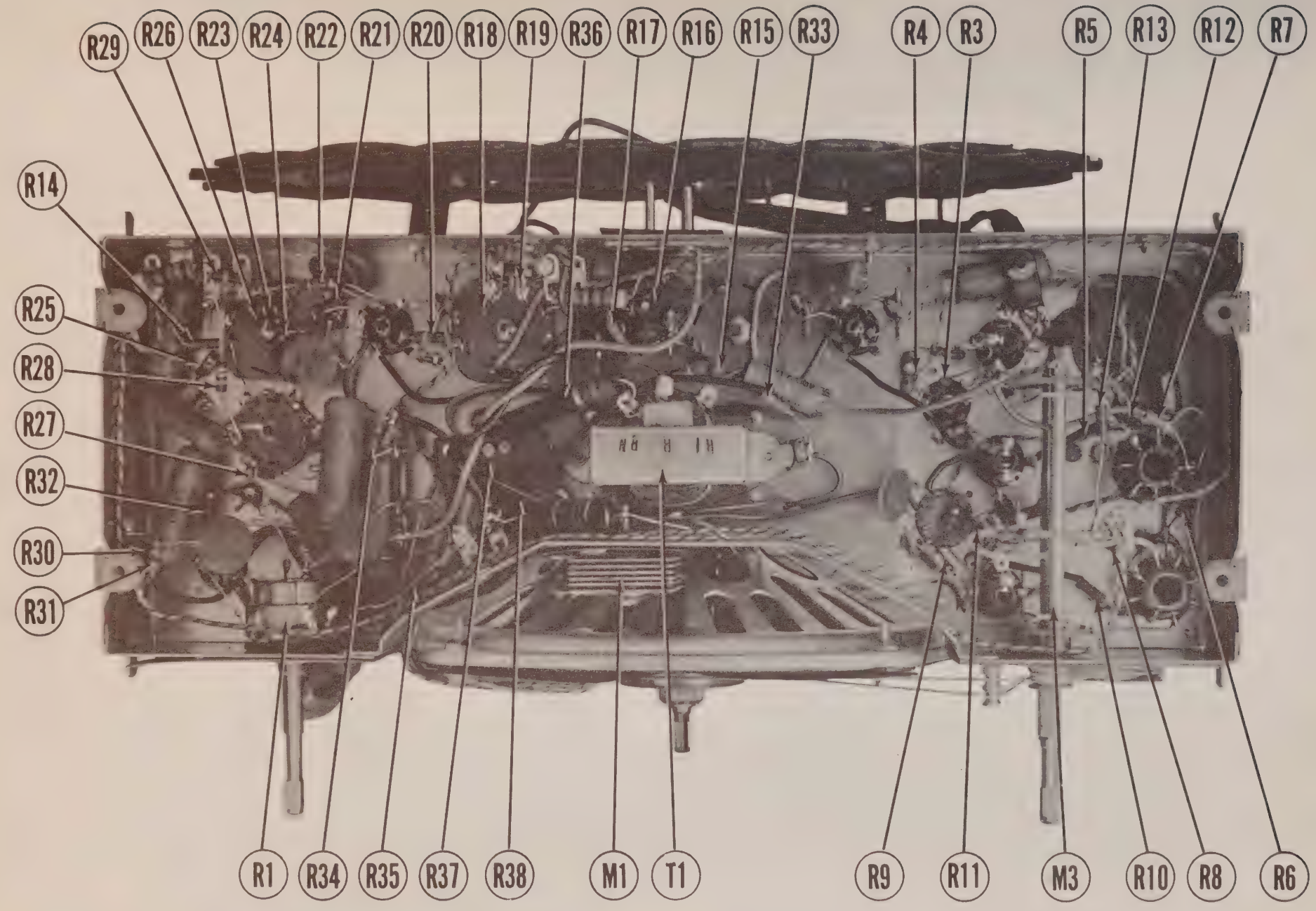


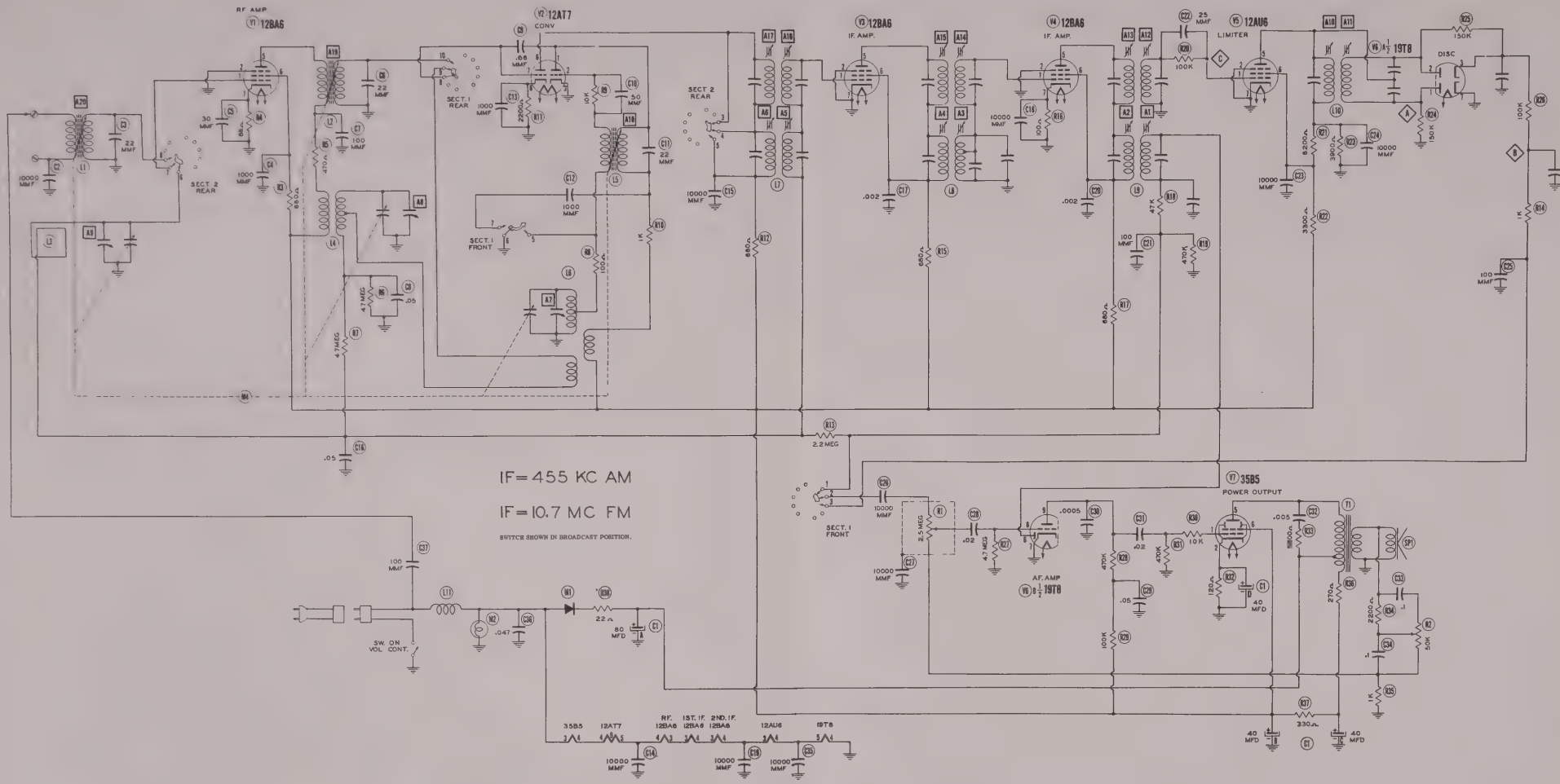
DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis 1, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


C29
C25
C35
C24
C23
C22
C21
C19
C37
C20
L11
C18
C17
C4
C5
C3
C16
L1
L2
C2
C15
C8
L4
L6
C30
C31
C27
C28
C34
C26
C33
C36
C32
C14
C10
C9
C12
L5
C11
C13
C6
C7


R29
R26
R23
R24
R22
R21
R20
R18
R19
R36
R17
R16
R15
R33
R4
R3
R5
R13
R12
R7
R14
R25
R28
R27
R32
R30
R31
R1
R34
R35
R37
R38
M1
T1
R9
R11
M3
R10
R8
R6



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	12BA6	0V.	0V.	55VAC	68VAC	90VDC	90VDC	.8VDC	
#	V1	12BA6	-.4VDC	0V.	55VAC	68VAC	90VDC	90VDC	.7VDC	
†	V2	12AT7	90VDC	(-2.4VDC	0V.	80VAC	66VAC	100VDC	0V.	3.7VDC	75VAC
#	V2	12AT7	90VDC	(-2.1VDC	0V.	80VAC	68VAC	100VDC	.1VDC	.8VDC	75VAC
†	V3	12BA6	-.4VDC	0V.	55VAC	44VAC	85VDC	85VDC	0V.		
#	V3	12BA6	-.4VDC	0V.	55VAC	44VAC	85VDC	85VDC	0V.		
†	V4	12BA6	0V.	0V.	44VAC	31VAC	85VDC	85VDC	1.1VDC		
#	V4	12BA6	0V.	0V.	44VAC	31VAC	85VDC	85VDC	1.1VDC		
†	V5	12AU6	-.2VDC	0V.	31VAC	18VAC	19VDC	70VDC	0V.		
†	V6	19T8	-.7VDC	-4.5VDC	4.3VDC	0V.	18VAC	-.5VDC	0V.	-.3VDC	32VDC
†	V7	35B5	0V.	5.5VDC	117VAC	80VAC	125VDC	100VDC	0V.		

† TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
#	V1	12BA6	3.5 Meg.	0Ω	56Ω	70Ω	†1.1KΩ	†1.3KΩ	68Ω	
#	V1	12BA6	3.5 Meg.	0Ω	56Ω	70Ω	†1.1KΩ	†1.3KΩ	68Ω	
†	V2	12AT7	†2KΩ	10KΩ	0Ω	82Ω	70Ω	†1.3KΩ	0Ω	3.2KΩ	75Ω
#	V2	12AT7	†2KΩ	10KΩ	0Ω	82Ω	70Ω	†1.3KΩ	3.5 Meg.	2.2KΩ	75Ω
†	V3	12BA6	3.8 Meg.	0Ω	56Ω	44Ω	†1.5KΩ	†1.5KΩ	0Ω		
#	V3	12BA6	3.6 Meg.	0Ω	56Ω	44Ω	†1.5KΩ	†1.5KΩ	0Ω		
†	V4	12BA6	3Ω	0Ω	44Ω	32Ω	†1.5KΩ	†1.5KΩ	100Ω		
#	V4	12BA6	3Ω	0Ω	44Ω	32Ω	†1.6KΩ	†1.5KΩ	100Ω		
†	V5	12AU6	190KΩ	0Ω	32Ω	10Ω	†12KΩ	†3.9KΩ	0Ω		
†	V6	19T8	150KΩ	150KΩ	350KΩ	0Ω	19Ω	530KΩ	0Ω	4.7 Meg.	†470KΩ
†	V7	35B5	480KΩ	190Ω	115Ω	82Ω	†300Ω	†600Ω	480KΩ		

† TAKEN IN "FM" POSITION.
# TAKEN IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1950

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and chassis.

To set pointer turn tuning cap fully closed and set pointer parallel with base of dial.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (Grid) of 12AT7 (V2). Low side to chassis.	455KC (400 ∿ Mod.)	AM (CCW)	Tuning gang fully closed	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1600KC	"	Set pointer to bottom left calibration on speaker frame.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	"	Tune for max. output	"	A8, A9	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (Grid) of 12AU6 (V5). Low side to chassis.	10.7MC (Unmod.)	FM (CW)	Tuning gang fully closed	DC Probe thru 2 Meg. to Point (A). Common to chassis.	A10	Adjust for maximum deflection.
5.	.05MFD	"	"	"	"	DC Probe to Point (B). Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	.05MFD	High side to pin 1 (Grid) of 12BA6 (V4). Low side to chassis.	"	"	"	DC Probe thru 2 Meg. to Point (C). Common to chassis.	A12, A13	Adjust for maximum deflection.
7.	.05MFD	High side to pin 1 (Grid) of 12BA6 (V3). Low side to chassis.	"	"	"	"	A14, A15	"
8.	.05MFD	High side to pin 7 (Grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A16, A17	"

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (Grid) of 12BA6 (V4). Low side to chassis.	10.7MC (450KC Sweep)	FM (CW)	Tuning gang fully open	Vert. Amp. thru 2 Meg. to Point (C). Low side to chassis.	A12, A13	Adjust for maximum amplitude and symmetry as per figure 1.
5.	.05MFD	High side to pin 1 (Grid) of 12BA6 (V3). Low side to chassis.	"	"	"	"	A14, A15	"
6.	.05MFD	High side to pin 7 (Grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A16, A17	"
7.	.05MFD	"	"	"	"	Vert. Amp. to Point (B). Low side to chassis.	A11, A10	Adjust A11 so 10.7MC occurs at center of crossover lines as per figure 2. Adjust A10 for maximum amplitude and straightness of crossover lines. Continue with step 9.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	270Ω carbon res.	High side thru 270Ω to "FM" antenna terminal. Low side to chassis. (Remove line antenna).	98MC (Unmod.)	FM	Set pointer to center mark on lower part of speaker frame.	DC Probe thru 2 Meg. to Point (C). Common to chassis.	A18, A19, A20	Adjust in the order given for maximum deflection.

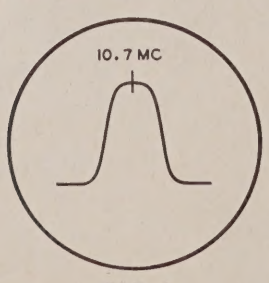


FIG. 1

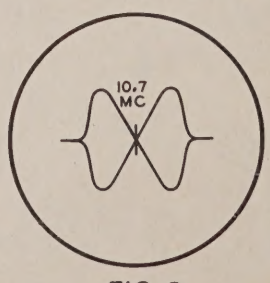


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	12BA6	12BA6	7BK	
V2	Converter	12AT7	12AT7	9A	
V3	1st IF Amp.	12BA6	12BA6	7BK	
V4	2nd IF Amp.	12BA6	12BA6	7BK	
V5	Limiter	12AU6	12AT6	7BK	
V6	Disc. -DET-AVC-AF	19T8	19T8	9E	
V7	Power Output	35B5	35B5	7BZ	

CAPACITORS

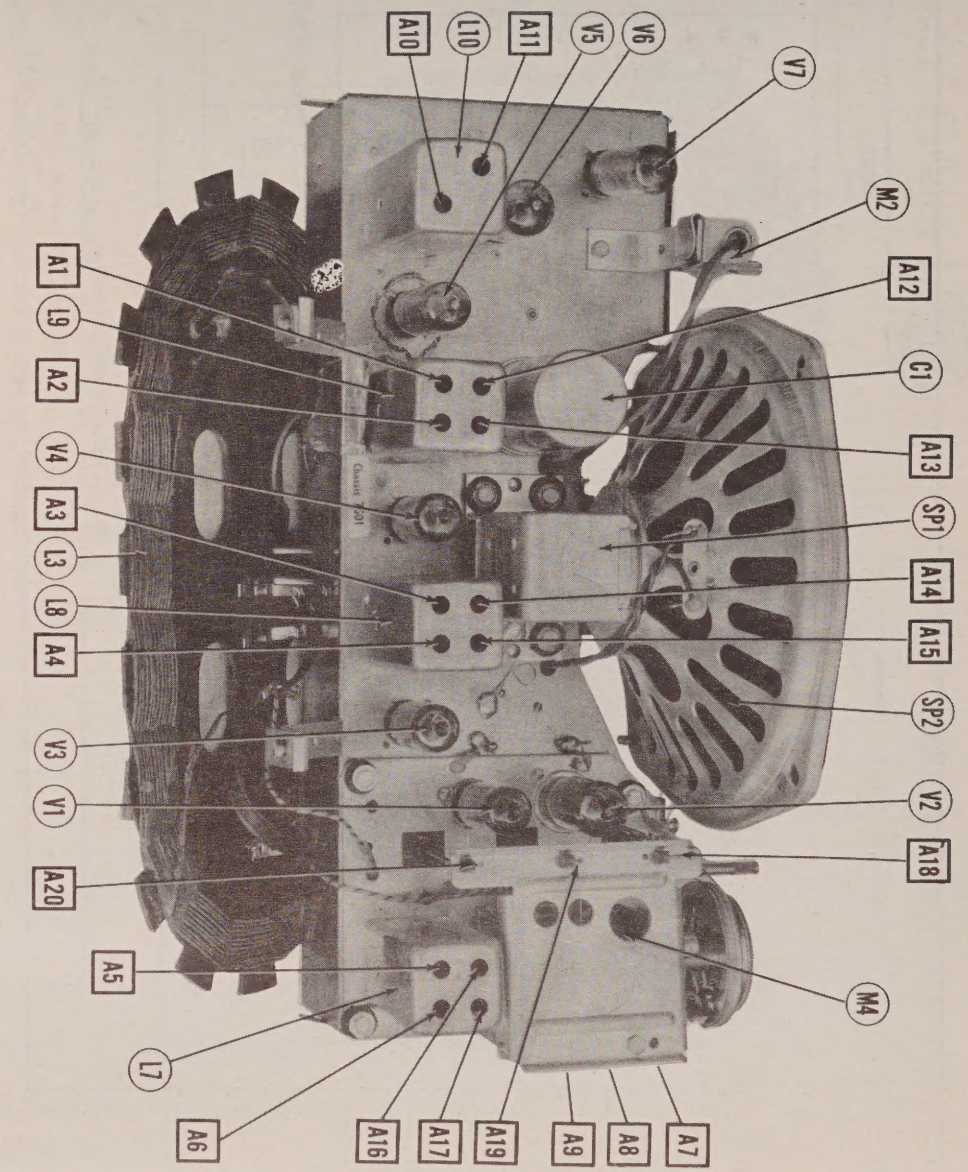
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	22-1661	AF1688D8A		UP84415		D5198	▲ Filter
B	40	150				C10			■ Filter
C	40	150							▲ Filter
D	40	25							Output Cath. Bypass
C2	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Ant. Isolation
C3	22		22-1506	CN22JN080			N080-331-22		Fixed Trimmer
C4	1000		22-1676	GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	RF Screen Bypass
C5	30		22-1705	GP30M	D6-330	5W5Q3	GP1K-30	MS-43	RF Cathode Bypass
C6	22		22-1506	CN22JN080			N080-331-22		Fixed Trimmer
C7	100		22-1669	GP100M	D6-101	5W5T1	GP1K-100	1FM-31	RF Plate Decoup.
C8	.05	200	22-829	P288-05		PTE4S5		TM-15	AVC Filter
C9	.68		22-1766		D2-.68				Osc. Coupling
C10	50		22-1367	GP50M	D6-500	5W5Q5	GP1K-50	1FM-45	Osc. Grid Cap.
C11	22		22-1506	CN22JN080			N080-331-22		Fixed Trimmer
C12	1000		22-1676	GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	Osc. Plate Decoup.
C13	1000		22-1676	GP1000M	D6-102	1W5D1	GP2L-001	1FM-21	Conv. Cath. Byp.
C14	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Conv. Fil. Byp.
C15	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Conv. Plate Decoup.
C16	.05	200	22-829	P288-05		PTE4S5		TM-15	AVC Filter
C17	.002	600	22-1220	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	1st IF Decoup.
C18	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	2nd IF Cath. Byp.
C19	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	2nd IF Fil. Byp.
C20	.002	600	22-1220	P688-002	D6-202	PTE6D2	GP2M-002	TM-22	2nd IF Decoup.
C21	100		22-1669	GP100M	D6-101	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C22	25		22-1507	GP25M	D6-250	5W5Q25	GP1K-25	MS-425	IF Coupling
C23	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Limiter Screen Byp.
C24	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Limiter Plate Dec.
C25	100		22-1669	GP100M	D6-101	5W5T1	GP1K-100	1FM-31	RF Bypass
C26	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Audio Coupling
C27	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Vol. Cont. Isolation
C28	.02	400	22-1683	P488-02		PTE4S2		TM-12	Audio Coupling
C29	.05	200	22-829	P288-05		PTE4S5		TM-15	AF Amp. Plate Dec.
C30	.0005	600	22-854	GP500M	D6-501	5W5T5	GP2K-500	TC-35	AF Amp. Plate Bypass
C31	.02	600	22-830	P688-02		PTE6S2		TM-12	Audio Coupling
C32	.005	400	22-1702	P688-005	D6-502	PTE6D5	811-005	TM-25	Tone Compensation
C33	.1	200	22-2084	P288-1		PTE4P1		TM-1	Tone Compensation
C34	.1	200	22-2084	P288-1		PTE4P1		TM-1	Tone Compensation
C35	10000		22-3	BPD-10	D6-103	PTE4S1	811-01	36C1	Limiter Fil. Bypass
C36	.047	400	22-1775	P488-047		PTE4S5		TM-15	Line Filter
C37	100		22-1669	GP100M	D6-101	5W5T1	GP1K-100	1FM-31	Line Ant. Coupling

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2.5 Meg.	½	63-1584	Q11-239	AM-84-S	AN-83	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	K-155	Attach to R1A per instructions
R2	50KΩ	½	63-2108			SB-201	Tone control

CHASSIS—TOP VIEW



SET 101

FOLDER 18

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
R3	680Ω	½	63-1779	BTS-680	RF Screen
R4	68Ω	½	63-1737		RF Cathode
R5	470Ω	½	63-1772	BTS-470	RF Plate Decoupling
R6	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	AVC Network
R7	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	AVC Network
R8	100Ω	½	63-1744		Parasitic Supp.
R9	10KΩ	½	63-1828	BTS-10K	Osc. Grid
R10	1000Ω	½	63-1785	BTS-1000	Osc. Plate Decoupling
R11	2200Ω	½	63-1800	BTS-2200	Conv. Cathode
R12	680Ω	½	63-1779	BTS-680	Conv. Plate Decoupling
R13	2.2 Meg.	½	63-1926	BTS-2.2 Meg.	AVC Network
R14	1000Ω	½	63-1786	BTS-1000	De-emphasis
R15	680Ω	½	63-1779	BTS-680	1st IF Decoupling
R16	100Ω	½	63-1774		2nd IF Cathode
R17	680Ω	½	63-1779	BTS-680	2nd IF Decoupling
R18	47KΩ	½	63-1856	BTS-47K	Diode Filter
R19	470KΩ	½	63-1898	BTS-470K	Diode Load
R20	100KΩ	½	63-1870	BTS-100K	Limiter Grid
R21	8200Ω	½	63-1824	BTS-8200	Limiter Plate Decoupling
R22	3300Ω	½	63-1806	BTS-3300	Limiter Decoupling
R23	3900Ω	½	63-1810	BTS-3900	Voltage Divider
R24	150KΩ	½	63-1876	BTS-150K	Disc. Diode Load
R25	150KΩ	½	63-1876	BTS-150K	Disc. Diode Load
R26	100KΩ	½	63-1870	BTS-100K	De-emphasis
R27	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	AF Amp. Grid
R28	470KΩ	½	63-1898	BTS-470K	AF Amp. Plate
R29	100KΩ	½	63-1870	BTS-100K	AF Amp. Plate Decoupling
R30	10KΩ	½	63-1828	BTS-10K	Output Grid
R31	470KΩ	½	63-1898	BTS-470K	Output Grid
R32	120Ω	½	63-1747	BW-½-120	Output Cathode
R33	5600Ω	½	63-1817	BTS-5600	Tone Compensation
R34	2200Ω	½	63-1799	BTS-2200	Tone Compensation
R35	1000Ω	½	63-1785	BTS-1000	Tone Compensation
R36	270Ω	2	63-1452	BW-2-270	Filter-Wire Wound
R37	330Ω	2	63-1202	BW-2-330	Filter-Wire Wound
R38	22Ω	1	63-1450		Surge Limiter-Wire Wound

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2500Ω	3.6Ω	225Ω Tap ⓐ 2.7Ω	.7Ω	95-1035	A-3330 *	A-3031 *	RO-3 *	* Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-117		
SP1	PM	3.6Ω	49-608	MOD. P8-T	8A21	
	CONE DIA.	V. C. DIA.				
SP2	7 1/4"	3/4"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
L1	FM Ant.	0Ω	0Ω	S-14193		
L2	FM RF	0Ω	0Ω	S-15747		
L3	Loop Ant.	2.2Ω		S-13977-296		
L4	AM RF	3.1Ω	12Ω †	S-16344		† Tap at 4Ω
L5	FM Osc.	0Ω	0Ω	S-15733		

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
L6	AM Osc.	9.9Ω	1.6Ω	S-16345		
L7A	1st IF FM	.2Ω	9.5Ω ‡	S-15981		‡ Includes AM
B	1st IF AM	9Ω				
L8A	2nd IF FM	10Ω †	3Ω ‡	S-13971		‡ Includes AM
B	2nd IF AM					
L9A	3rd IF FM	9Ω ‡	1Ω	S-13972		‡ Includes AM
B	3rd IF AM		8Ω			
L10	Disc. Trans.	.4Ω	.4Ω	S-13973		
L11	AC Line Chk.	0Ω		S-12256		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	ZENITH PART No.	SYLVANIA PART No.		
M1	.095A	212-7	ND-5		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ZENITH PART No.		
M2	Bayonet	115			100-97		115V 10 watt

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Switch	85-464	AM-FM
M4	3 Gang Var. Cap.	22-1677	(24-410MMF, 16-213MMF, 18-92MMF)
	Dial Scale	26-445	
	Cabinet	14-1235	
	Dial Pointer	59-245	
	Knob	46-538	Tuning
	Knob	46-718	Band Switch
	Knob	46-855	Tone
	Knob Assembly	S-14129	Volume